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W. Hollander

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ROYAL SOCIETY OF MEDICINE

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J. Y. W. MACALISTER
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THE EDITORIAL COMMITTEE

VOLUME THE EIGHTH
SESSION 1914-15

PART I

OCCASIONAL LECTURES NOTES ON NEW BOOKS
SECTION OF ANÆSTHETICS BALNEOLOGICAL & CLIMATOLOGICAL SECTION
SECTION FOR THE STUDY OF DISEASE IN CHILDREN
CLINICAL SECTION DERMATOLOGICAL SECTION
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COMPRISING THE REPORT OF THE PROCEEDINGS FOR THE
SESSION 1914-15

GENERAL REPORTS



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The Royal Society of Medicine.

October 30, 1914.

IN the unavoidable absence of the President (Dr. FREDERICK TAYLOR) the Chair was taken by Sir HENRY MORRIS, Bt., who, on behalf of the Fellows, welcomed Professor Bose and introduced him to the meeting.

The Action of Drugs on Plants.

By Professor J. C. BOSE, C.S.I., C.I.E., M.A., D.Sc.

Presidency College, Calcutta.

It was not till recently that we realized how numerous are the difficulties that confront an investigator into the action of drugs upon the human subject. The medical faculty is amazed at the claims made by another body professing faith in science, who are reported to have made astounding cures without the aid of medicine. This body, hailing from the New World, even counts among its votaries citizens of this country. Sceptics explain away these alleged cures by a theory of auto-suggestion. But in the practice of medicine itself auto-suggestion is not excluded; for among the curative factors we have the personality of the physician, the inherited memory of the medicine man and his magical practices, and the pure effect of drugs as such. This will give us some idea of the great intricacy of the problem; and the only way in which we can evade the almost insuperable difficulties that confront us, is by taking for our experimental subject an organism whose psychic power is so undeveloped as to be incapable of reacting to a suggestion. Such a rigorous condition is amply fulfilled by the plant, for no one will impute an emotional exuberance to a turnip. Results of experiments carried out with plants will therefore give us the pure effect of the chemical agent. Therefore, we shall be on somewhat safer ground if before hazarding a new drug on a patient we examine its potency on an inarticulate and uncomplaining piece of vegetable.

That such expectations are not purely fanciful will become evident when I cite one of our greatest living authorities, whose work has become classical. In his well-known work on medicine, Sir Lauder

Brunton expresses his deliberate conviction that scientific investigations regarding the effects of various drugs on the animal could not be regarded as satisfactory until we succeeded in discovering their effects on living organisms as a whole, including the plant.

It is not necessary here to descant upon the importance of the more universal aspect of the subject as in the investigation by the comparative method. It will, however, be admitted that it is only by the study of the simpler phenomena of irritability in the vegetal organism that we can ever expect to elucidate the more complex physiological reactions in the animal tissues; and in the scientific study of the effect of drugs we should aim to get at the very root of the matter, in discovering the fundamental reactions of drugs on the simplest protoplasmic mechanism of the plant.

Assuming that plant tissues respond to the characteristic action of different drugs, yet the physiological change induced will elude our visual scrutiny. To take an extreme case, we find that it is impossible by mere inspection to distinguish between plant specimens one of which is alive and the other killed. We have then to discover means by which the plant itself is made to reveal its internal condition, and changes in that condition by characteristic signals recorded by it. Our success in devising such a method will enable us to determine whether a given drug causes an excitatory or depressing effect on the plant.

The results obtained with plants might lead us to expect that effects essentially similar would be found in the animal. But this expectation can only be justified if it can be shown that the physiological responses of the plants are in the main similar to those of the animal. This inference, however, runs counter to the prevailing opinion. For ordinary plants, unlike animals, maintain an attitude of passivity under a succession of blows. Animal tissues give electrical signs of irritation; ordinary plants, on the other hand, are supposed not to give any such signs of excitement. The animal possesses a wonderful nervous system by which the organism is put into intimate communication with its different parts and with the environment. On the other hand, all authorities are unanimous in declaring that in a plant admittedly so sensitive as *Mimosa* there is no such thing as nervous impulse. And lastly, certain rhythmic tissues of the animal go on beating incessantly without any apparent cause, this spontaneous activity undergoing very characteristic modification under definite physiological changes. No phenomenon corresponding to this had been suspected in the plant.

I shall have occasion to demonstrate that the assumption of such difference between animal and vegetable organisms is not justified. I shall, on the contrary, show that the phenomena of contractile response in the plant reveal characteristics similar to those of the animal; that even ordinary plants exhibit under excitement a responsive electrical variation of the same sign as in the animal; that excitatory impulses are transmitted through certain conducting tissues of the plant in a manner precisely similar to the nervous impulse in the animal; and that there are rhythmic tissues in the plant which react under various external conditions in a manner just the same as those of the animal.

After demonstrating the similar physiological characteristics in vegetal and animal organisms, I shall next speak of the effects of various stimulating and depressing agents, such as a constant electrical current, various drugs, narcotics and poisons, on the contractile, the conducting and the rhythmic tissues of the plant.

It will further be shown how the normal effect of a drug on the plant is profoundly modified by two other factors. The first of these is the influence of dose or strength of application. The second factor of modification is the change induced in the tissue by the cumulative action of stimulus, in consequence of which the response of the organism undergoes a complete cyclic change. Consideration of these questions will probably throw much light on various anomalies met with in medical practice.

Having now briefly outlined the subject of my discourse, I shall next describe my experimental devices, the methods of investigation, and their results. This somewhat extensive subject I shall treat in the following order:—

(I) PLANT SCRIPT.

- (1) Mechanical response of plant.
- (2) The Resonant Recorder.
- (3) Electrical response of plant.

(II) SIMILARITIES OF MECHANICAL RESPONSE IN PLANT AND ANIMAL.

- (1) Additive effect of stimulus.
- (2) Effect of temperature.
- (3) Work performed by contractile tissue.
- (4) Latent period and its variations.
- (5) Diurnal variation of excitability in plants.
- (6) Death-spasm in plants.

(III) DEMONSTRATION OF NERVOUS IMPULSE IN PLANTS.

- (1) Excitatory impulse in absence of mechanical disturbance.
- (2) Velocity of impulse modified under physiological variation.
- (3) Physiological block of nervous impulse.
- (4) Confirmatory evidence of electrical investigation.

(IV) CONDUCTING POWER OF NERVE AND ITS VARIATION.

- (1) Induction of artificial paralysis and its cure.
- (2) Canalisation of conducting path.
- (3) Control of nerve-conduction.

(V) SIMILARITIES BETWEEN RHYTHMIC PULSATIONS IN PLANT AND ANIMAL.

- (1) Refractory period.
- (2) Effect of ligature.
- (3) Effect of temperature.

(VI) EFFECT OF ELECTRICAL CURRENT ON PLANT-RESPONSE.

- (1) Polar reactions on contractile tissue.
- (2) Contrasted effect of anode and kathode on pulsating tissues.
- (3) Inhibitory effect of transmitted electric stimulation.

(VII) EFFECT OF CHEMICAL AGENTS ON THE RESPONSE OF CONTRACTILE TISSUE.

(VIII) EFFECT OF DRUGS ON THE CONDUCTING NERVE.

- (1) Effect of poison in the abolition of conduction.
- (2) The Conductivity Balance.

(IX) EFFECT OF DRUGS ON THE PULSATION OF RHYTHMIC TISSUE.

(X) MODIFYING INFLUENCE OF DOSE.

(XI) THE MOLECULAR CYCLE.

(I) PLANT SCRIPT.

As regards the possibility of revealing internal changes in the plant, the only conceivable way of doing so is by the detection and record of the response of the organism to a definite testing shock. If we can find out in the plant the relation between the stimulus and response, we shall be able to determine its state of vitality at the moment. In an excitable

condition the feeblest stimulus will evoke an extraordinarily large response; in a depressed state even a strong stimulus will evoke only a feeble response; and at the onset of death there is an abrupt end of the power to answer at all. Thus by means of testing blows we are able to make the plant itself reveal those invisible internal changes which would otherwise have entirely escaped us.

We may, as we shall see, employ different methods of recording the response of the plant. The most evident is the method in which the answer is given in the form of mechanical movement.

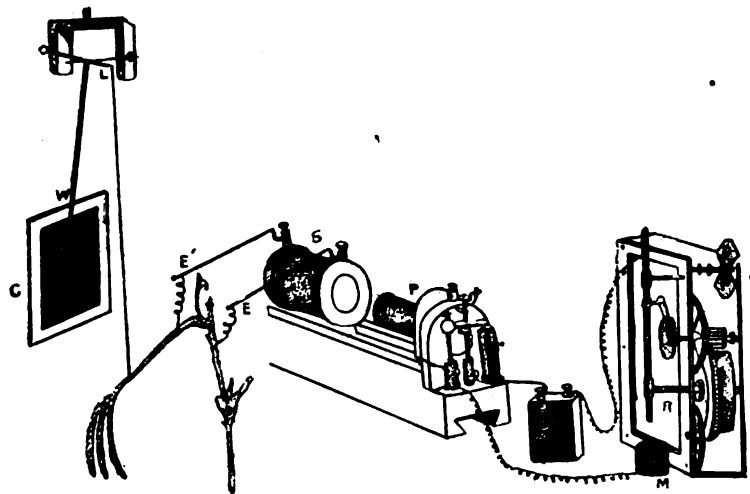


FIG. 1.

Diagrammatic representation of Automatic Plant Recorder. Petiole of *Mimosa*, attached by thread to one arm of lever, L; writing index, W, traces on smoked glass plate, G, the responsive fall and recovery of leaf; P, primary, and S, secondary, of induction coil. Electric shock passes through the plant by electrodes, E, E'; A, accumulator; C, clockwork for regulating duration of tetanising shock. Primary circuit of coil completed by plunging rod, R, dipping into cup of mercury, M.

(1) Mechanical Response of Plant.

At the joint in the leaf of the so-called sensitive plant, *Mimosa*, there is a cushion-like mass of tissue known as the pulvinus. Under excitation the parenchyma in the more excitable lower half of the pulvinus undergoes contraction, in consequence of which there is a fall of the leaf. This sudden movement constitutes the mechanical response of the leaf. By the invention of different types of recorders I have succeeded in making the plant itself write an answering script to a

testing stimulus; and in order that the results obtained should **not** be influenced by any personal factor, arrangements have been made that the plant attached to the recording apparatus should be automatically excited by a stimulus absolutely constant, should make its own responsive record, going through its own period of recovery and repeating the same cycle over again without assistance at any point on the part of the observer (fig. 1).

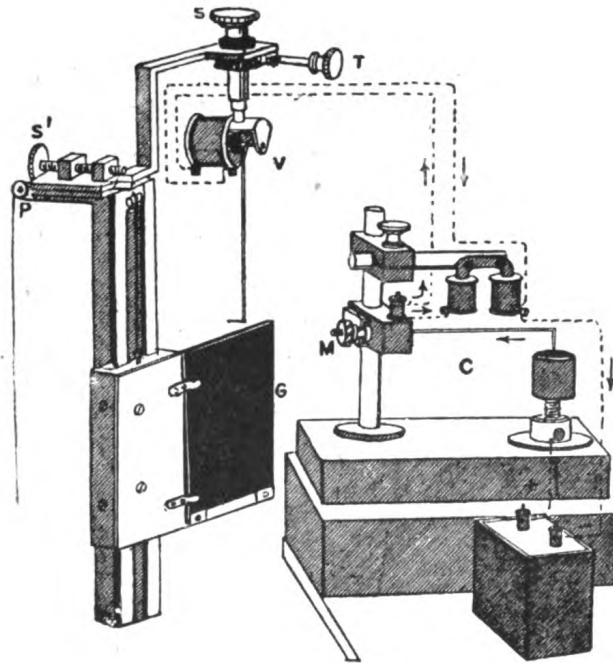


FIG. 2.

Upper part of Resonant Recorder (from a photograph). Thread from clock (not shown) passes over pulley, P, letting down recording plate. S', screw for adjustment of distance of writing-point from recording plate; S, screw for vertical adjustment; T, tangent screw for exact adjustment of plane of movement of recorder, parallel to writing surface; V, axis of writer supported perpendicularly at centre of circular end of magnet; C, reed; M, micrometer screw for adjustment of length of reed.

(2) *The Resonant Recorder.*

In obtaining the actual record of responsive movements in plants we encounter many serious difficulties. In the case of muscle-contraction, the pull exerted is considerable and the friction offered by the recording surface constitutes no essential difficulty. In the case

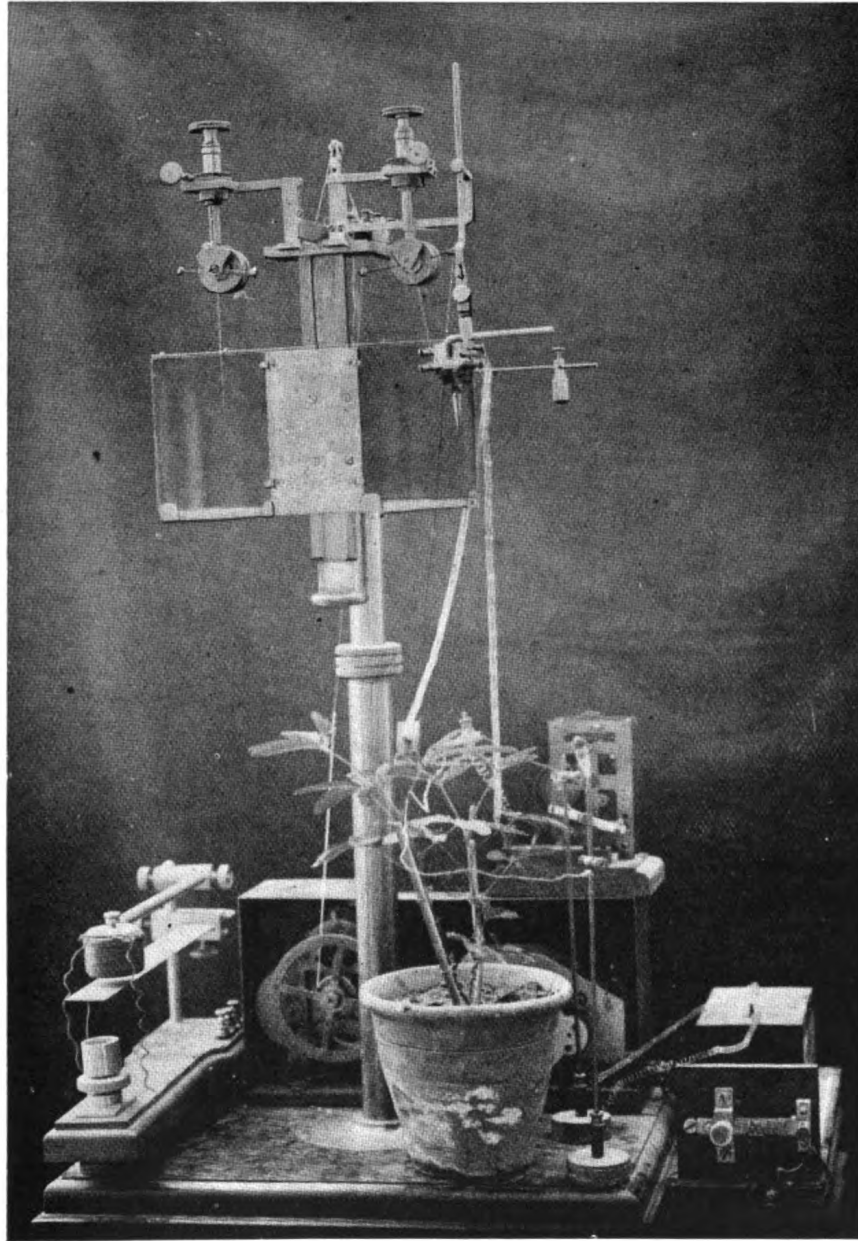


FIG 3.

Photograph of Duplex Resonant Recorder, with plant and accessories.

of plants, however, the pull exerted by the motile organ is relatively feeble, and in the movement of the very small leaflets of *Desmodium gyrans*, or the telegraph plant, for instance, a weight so small as four-hundredths of a gramme is enough to arrest the pulsation of the leaflets. The difficulty could not be removed as long as the writer remained in continuous contact with the writing surface, but I was finally able to overcome it by making an intermittent instead of a continuous contact. The possibility of this lay in rendering the writer tremulous, this being accomplished by an invention depending on the phenomenon of resonance.

The principle of my Resonant Recorder depends on sympathetic vibration. If the strings of two violins are exactly tuned, then a note sounded on one will cause the other to vibrate in sympathy. We may likewise tune the vibrating writer, V, with a reed, C (fig. 2). Suppose the reed and the writer are both tuned to vibrate a hundred times per second. When the reed is sounded the writer will also begin to vibrate in sympathy. In consequence of this the writer will no longer remain in continuous contact with the recording plate, but will deliver a succession of taps a hundred times in a second. The record will therefore consist of a series of dots, the distance between one dot and the next representing one-hundredth part of a second. With other recorders it is possible to measure still shorter intervals. It will now be understood how, by the device of the Resonant Recorder, we not only get rid of the error due to friction, but make the record itself measure time as short as may be desired. The extreme delicacy of this instrument will be understood when by its means it is possible to record a time-interval as short as the thousandth part of a second. Fig. 3 is a photograph of the entire apparatus with accessories.

(3) *Electrical Response of Plant.*

In *Mimosa* the responsive fall of the leaf is due to greater contraction of the lower half of pulvinus. It is evident that if the upper half had been equally excitable the two excitatory contractions would have balanced each other with no resulting movement. It is thus seen that a plant may be excitable and yet may be unable to show it by external movement.

By electrical methods of investigation I have been able to show that every plant, and each organ of every plant, is sensitive, and exhibits the state of excitement by electromotive variation of galvanometric

negativity—that is to say, an electrical change identically the same as that induced in an excited animal tissue.¹ In fig. 4 is shown a series of electrical response in *carrot*, and its gradual arrest under the action of a narcotic.

Thus the two independent methods are at our disposal by which the excitability of a plant tissue and its variations under physiological changes may be detected and accurately recorded.

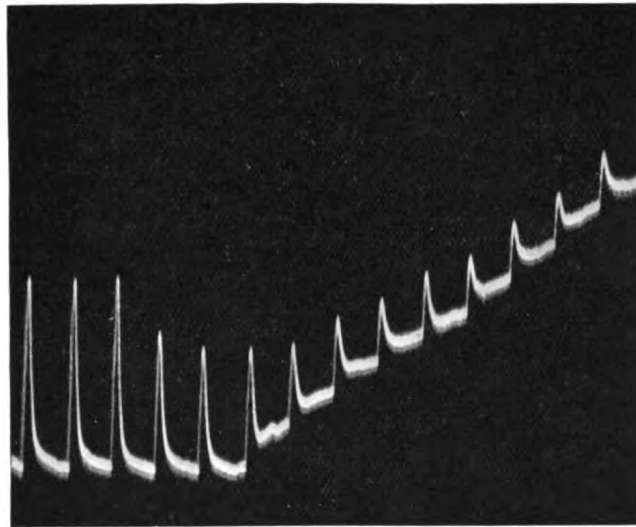


FIG. 4.

Effect of chloroform on electrical response of carrot. The anaesthetic was applied after the third response.

(II) SIMILARITIES OF MECHANICAL RESPONSE IN PLANT AND ANIMAL.

I shall next describe various characteristics of response of contractile plant tissues, from which their remarkable similarity with corresponding response of animal tissue, will become evident.

(1) *Additive Effect of Stimulus.*

In the response of animal tissue it is found that a single stimulus, by itself ineffective, becomes effective upon repetition. The same is found to be the case in plant tissue. Thus, in a particular experiment,

¹ Bose : Friday Evening Discourse, Royal Institution, May 10, 1901. Bose, "Comparative Electro-physiology" (Longmans, Green and Co., 1907).

while an electrical stimulus of intensity 0.1 was singly ineffective, it became effective after being repeated twenty times. It is found, moreover, that this additive effect is, within limits, strictly quantitative.

(2) *Effect of Temperature.*

As in the case of the animal tissue, so also in *Mimosa*, the response is abolished at a sufficiently low temperature. With rise of temperature the amplitude of response is increased and the period of recovery shortened.

(3) *Work performed by Contractile Tissue.*

The effect of load on the response of *Mimosa* is similar to that on the contractile response of muscle. In both, under increasing load,

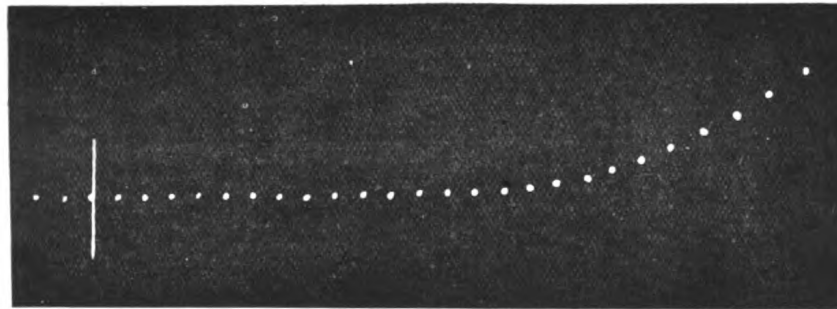


FIG. 5.

Record showing the latent period of *Mimosa*. This recorder vibrates 200 times per second. The time-interval between successive dots is here 0.005 second. The vertical line represents moment of application of stimulus.

the height of response undergoes a progressive diminution, with shortening of the period of recovery. Within limits the amount of work performed by the muscle increases with the load. The same is true of the work performed by the pulvinus of *Mimosa*.

(4) *Latent Period and its Variations.*

The latent period is in general shorter under greater intensity of stimulus, the value becoming constant above a maximal stimulus. The shortest value in the pulvinus of *Mimosa* is 0.06 second. Fig. 5 is

a record giving a value of 0.076 second. A rise of temperature shortens the latent period.

Under fatigue, on the other hand, the latent period is very much prolonged. When excessively tired the plant temporarily loses its power of response. In this condition the plant requires at least half an hour's absolute rest to regain its equanimity. In all these reactions we observe a remarkable parallelism with contraction phenomena in the muscle.

(5) *Diurnal Variation of Excitability in Plants.*

I do not know if any specific investigation has been carried out to ascertain whether the life-activity in the human subject remains

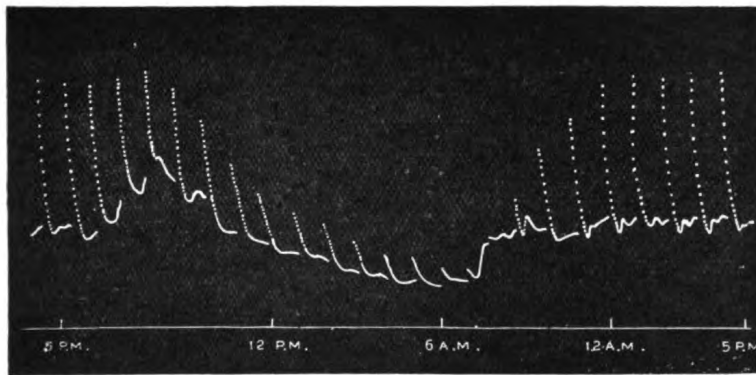


FIG. 6.

Record for twenty-four hours, exhibiting diurnal variation of excitability, commencing at 5 in the afternoon.

uniform during the twenty-four hours, or whether it undergoes any definite periodic variation. I believe it is generally found that vitality is at its lowest ebb in the early hours of the morning. In any case, I find the physiological activity of the plant does not remain uniform, but undergoes a diurnal fluctuation. For carrying out investigations on this subject I made *Mimosa* record its answers to uniform testing shocks repeated every hour of day and night. The amplitude of the answering twitch gave a measure of its activity at each hour. I always found that the excitability of the plant was at its minimum in the early morning, attaining its maximum at noon (fig. 6).

(6) *Death-spasm in Plants.*

The electrical response of galvanometric negativity is abolished on the death of the plant. When the plant is subjected for a time to a temperature of 60° C. the electrical response disappears. This temperature is therefore fatal for most plants. In order to determine the exact death-point I subjected *Mimosa* and various other plants to a gradual rise of temperature. This is attended by a progressive, expansive, or erectile movement; at the critical temperature of 60° C., however, the movement of expansion is suddenly reversed to a spasmodic excitatory contraction. The reversal takes place under standard conditions at or about 60° C.; after this the response of the plant is permanently abolished. The death-record is a V-shaped curve, the sharp point of inversion being the death-point. After death, repetition of this experiment shows no further inversion.

It may be thought that this spasmodic movement is not physiological, but that the contraction is caused by coagulation of protoplasm. The following facts, however, dispose of that supposition. In the event of the contraction being due to coagulation the resulting movement, brought on by general shortening, would be non-discriminative in direction. But in the case of excitatory movement the direction would be discriminative—i.e., determined by the question of the differential excitabilities of the two sides of the tissue. In *Mimosa* it is the lower half of the pulvinus that is more excitable, hence the excitatory contraction of the more irritable lower half determines the spasmodic down-movement at death. Again, if we take a hollow tubular organ, such as the flower peduncle of dandelion or daffodil, and cut it in the form of a spiral, we get a preparation of which the inner or protected side is the more excitable. Hence at the fatal temperature the death-spasm is here exhibited by a greater contraction of the inner surface, resulting in a *curling* movement or tightening of the spiral. But if instead of this we take a tendril that has twined itself round a support, the inside of the spiral, owing to constant irritation by contact, will have been rendered less excitable through fatigue. In this case it is the outer side of the spiral that is relatively more excitable. The death-spasm of the tendril is shown in this case by a movement of sudden *uncurling* — i.e., a movement exactly the opposite of that exhibited by the cut spiral. The difference in the two cases emphasises the excitatory character of the phenomenon. Again, if the spasm observed at the fatal temperature be physiological, the extent of the

movement will depend on the vigour of the specimen; and in conformity with this we find that the death-spasm in younger specimens is far more violent than in old specimens. Moreover, the sudden contraction, or death rigor, in the plant is followed by a post-mortem relaxation. Hence in a complete death-curve we have first a down-curve indicative of expansion; then a sudden notch or inverted up-curve, exhibiting spasmodic contraction; and finally another down-curve showing post-mortem relaxation, the whole curve being like an inverted N. It is found, as stated before, that the size of this notch, indicative of death-throe, depends on the vigour of the plant. With a young specimen it is very large, and becomes smaller and smaller with advancing age. With extreme old age the notch almost vanishes, and life passes imperceptibly into death.

That this spasmodic contraction is a physiological phenomenon is further seen from the fact that the death-point, as determined from the inversion of the curve, is lowered under physiological depression. Thus, fatigue will lower it to an extent depending upon the degree of fatigue. In a certain instance the death-point, owing to the above cause, was lowered from the normal 60° C. to 37° C. Previous administration of dilute poison lowered the death-point in another case by 18° C.

Finally, I have shown that all excitatory reactions have as their concomitant a sudden electrical change, of a definite sign; and it is very significant that at the critical temperature of 60° C. there occurs a sudden electrical discharge in the plant, the direction of the current being determined by the differential excitabilities of the tissue.

(III) DEMONSTRATION OF NERVOUS IMPULSE IN PLANTS.

It has been hitherto supposed that in *Mimosa* the impulse caused by irritation is merely hydro-mechanical, and quite different from the nervous impulse in the animal. According to the hydro-mechanical theory, the application of mechanical stimulus is supposed to squeeze the tissue, in consequence of which the water thus forced out delivers a mechanical blow to the motile organ of the plant. This mechanical theory was accepted in view of the anæsthetic experiment of Pfeffer, who, applying chloroform to the *surface* of the stem, found that this did not arrest the impulse. A little reflection will, however, show that under the particular conditions of the experiment the conducting tissue in the interior could not have been affected by the narcotic; the task being, in fact, as difficult as narcotising a nerve-trunk lying between muscles by application of chloroform to the skin outside.

We may apply several crucial tests to decide the question as to whether the impulse in the plant is mechanical or physiological:—

(1) The impulse could not be mechanical, if excitation can be initiated and propagated without any physical disturbance.

(2) The impulse must be physiological, or of a nervous character, if it can be shown that physiological changes induce appropriate variation in the velocity of transmission of the impulse.

(3) If the impulse is arrested by various physiological blocks, then it must be excitatory or of a nervous character.¹

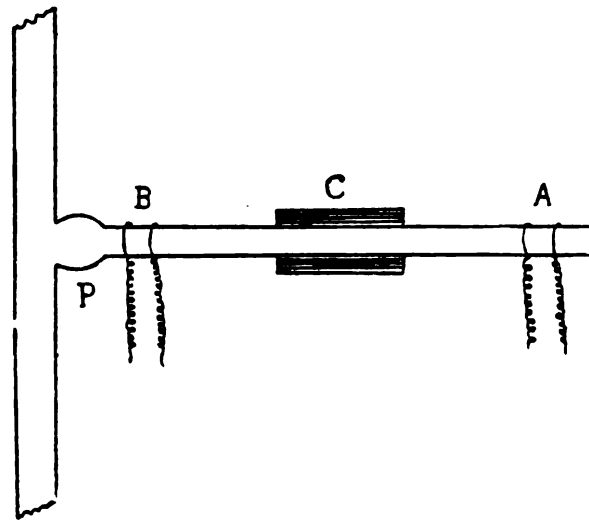


FIG. 7.

Experimental arrangement for determination of velocity of transmission and its variation. Record is first taken when stimulus is applied near the pulvinus at B (latent period) and then at a distant point on the leaf-stalk at A. Difference of two gives time for transmission from A to B. The band of cloth, C, is for local application of warmth, cold, anaesthetics, and poison.

(1) *Excitatory Impulse in Absence of Mechanical Disturbance.*

I have shown elsewhere that excitation takes place in the plant under the polar action of an electrical current, in the complete absence of any mechanical disturbance. This is realised when we find that in certain plants an excitatory impulse is initiated and transmitted by the action of a current which is so feeble as not to be perceived even by the very sensitive human tongue.

¹ For a more detailed account see Bose, "An Automatic Method for the Investigation of Velocity of Transmission of Excitation in *Mimosa*," *Phil. Trans. Roy. Soc.*, Series B, 1914, cciv, pp. 63-97; Bose, "Researches on Irritability of Plants" (Longmans, Green and Co., 1913).

(2) *Velocity of Impulse modified under Physiological Variation.*

The experimental method employed to determine whether any physiological change induces variation in the speed of transmission is seen in fig. 7.

Among the favourable agents which have a marked effect on the nervous impulse of the animal is the influence of temperature. Hence we may devise a decisive experiment to discriminate between the theories of mechanical and nervous transmission in the plant. Temperature has no effect on mechanical propagation, whereas a moderate variation of it profoundly affects nervous transmission. The result given in fig. 8 is quite conclusive as regards the excitatory character of the impulse in plants. It is seen that with rising temperature the time required

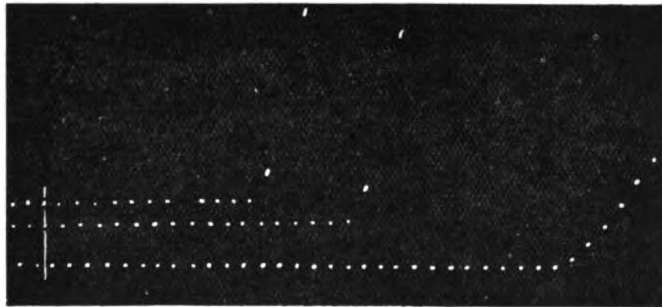


FIG. 8.

Effect of rising temperature in enhancing velocity of transmission. The three records from below upwards are for temperatures 22° C., 28° C., and 31° C. respectively. Successive dots represent intervals of 0·1 second.

for transmission through the same distance is continuously reduced. In the present case the velocity is seen to be more than doubled by a rise of temperature through 9° C.

The velocity of transmission of 30 mm. per second in *Mimosa* is of the same order as the speed of nervous impulse in some of the lower animals. This is seen in the fact that the velocity in the nerve of the slug is 125 mm. and in *Anodon* only 10 mm. per second.

(3) *Physiological Block of Nervous Impulse.*

As in the case of the animal, so also in the case of the plant, the excitatory impulse may be arrested by the action of an electrotonic

block. As long as the current is maintained, so long is the impulse arrested; on the cessation of the blocking current, however, the conducting power is immediately restored. Local application of poison is found to arrest permanently the excitatory impulse through the poisoned tract.

(4) *Confirmatory Evidence of Electrical Investigation.*

Another distinct line of investigation independently supports these conclusions. I have shown that the excitatory change in the plant is accompanied by a concomitant electrical change of galvanometric negativity. Electrical investigation carried on with certain isolated strands of conducting tissue of the plants shows that this excitatory electrical impulse is transmitted to a distance along them.

(IV) CONDUCTING POWER OF NERVE AND ITS VARIATION.

We have seen how the physiological characteristics of the excitatory impulse in the plant are similar to those of nervous impulse in the animal. Under certain conditions the animal nerve undergoes changes leading to paralysis. In such a case a cure may sometimes be effected. The problem here is to impart a better conducting power to an ineffectively conducting tissue. This power of conduction or its absence are ultimately dependent on obscure molecular modifications. Discovery of parallel phenomena in the plant will undoubtedly prove of great importance.

(1) *Induction of Artificial Paralysis and its Cure.*

An interesting experiment relates to the artificial induction of temporary paralysis. When localised cooling is applied to a part of the petiole of *Mimosa*, the conduction of excitation through that portion becomes greatly delayed, till with sufficient cooling there is an actual block to the transmission of excitation. Thus it is possible by applying a fragment of ice to cause local paralysis of the conducting power of the petiole, which persists for over an hour, even after restoration of the tissues to the normal temperature. It is extremely suggestive, that I was able under these conditions quickly to restore the conducting power by application of electrical shocks of moderate intensity to the paralysed region. Too strong a shock was, however, found to be highly detrimental.

(2) Canalisation of Conducting Path.

In plant experiments I find a very significant result as regards the power of stimulus to fashion its own conducting path. Thus a plant carefully protected under glass from the stimulating buffets of the elements looks sleek and flourishing, yet is in reality flabby. Its conducting power is found to be in abeyance, though the motile organ exhibits its normal power of contraction. Anatomically the conducting elements are present, but from want of use they remain functionally inactive. Now in this condition it is very interesting to watch the growth of conducting power under the influence of stimulating blows. There is at first no transmission; after a time excitatory impulse begins to be initiated. Continued stimulation enhances the

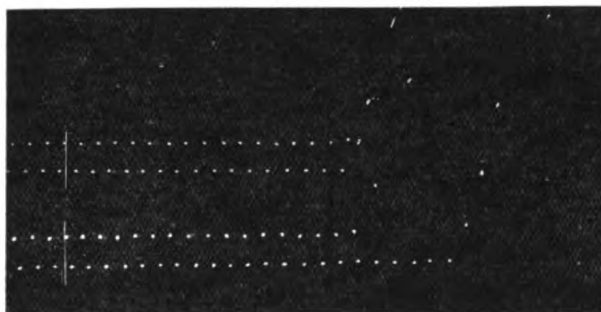


FIG. 9.

Canalisation of conducting path by stimulus. Sluggish conducting power seen in lowest record. The next record shows enhancement of conducting power in consequence of previous stimulation. The uppermost record shows attainment of maximum power of conduction.

conducting power to a maximum. The concluding part of this process is illustrated in the records given in fig. 9.

(3) Control of Nerve-conduction.

What is the change of the tissue which brings on paralysis? What is the molecular condition which confers conducting power on a nerve? These are very obscure problems, and any investigation calculated to throw light on the subject will undoubtedly prove of the highest importance not only in theory but also in practice.

The nerve may have been rendered abnormal in two different ways.

In one case it may have become extremely sluggish in transmitting an impulse. In the other case it may have become so hypersensitive as to transmit the feeblest excitation with intolerable intensity. In restoring the nerve to a normal condition, we want to augment the conducting power in one case or arrest it in the other.

A man who constantly uses the telephone has it in his power, by a simple process of switching on and off, to keep the circuit open or closed to the calls he receives, according as the message is pleasant or unpleasant. Can he similarly have the same control over the conducting system which exists within himself? Is it possible for him to augment or inhibit the nervous messages?

The phenomenon of excitation may be regarded as a process of molecular upset caused by stimulus, and the transmission of excitation as the propagation of the molecular disturbance. The phenomenon of molecular upset we may simply picture by means of a row of standing books. A certain intensity of blow applied, say, to the book on the extreme right would cause it to fall to the left, hitting its neighbours and causing them to topple over in succession. If the books have previously been slightly tilted towards the left, a disposition would have been given to them which, by facilitating the fall, would accelerate the speed of transmission. Conversely, an opposite disposition would retard or arrest the movement. Thus by means of a directive or polar force we may induce a molecular predisposition which would enhance or retard the speed of the disturbance according to the directive action, positive or negative, of the polar force. It may thus be possible to discover some polar force which, by inducing characteristic molecular dispositions, would enhance or retard the conduction in a nerve.

So much for theory; its value must be judged by practical results. It may be briefly stated here that, acting on the principle that has been described, I have been successful in inducing at will and by turns two opposite molecular dispositions in the conducting tissue of the plant. When the polar force was maintained in a positive direction, the speed of the excitatory impulse was enhanced in a remarkable manner. The nervous impulse could, on the other hand, be increasingly retarded, and finally arrested, by reversing the direction of the force and increasing its intensity. These *supra* or *a*-conducting states were maintained as long as the nerve was subjected to the action of the given force.¹

¹ The detailed account of this investigation has recently been communicated to the Royal Society.

I have referred to the conducting tissue of the plant as a *nerve*. The use of this term has, I think, been justified by the remarkable similarities of reactions between the conducting tissues of the plant and animal under varied conditions. Perhaps the crucial test of a theory may lie in the power which it gives of predicting unknown phenomena, the predictions being afterwards fully verified. Believing in the identity of characteristics of plant and animal nerves, I applied the same polar forces which I found to be so effective in my plant experiments to the nerve of the frog; and it was a matter of intense gratification to me to find that by employing the same methods I could exalt or inhibit at will the conducting power of the experimental nerve. The importance of this investigation must be obvious to all. Its success further proves the importance of physiological investigation on plants in elucidating intricate problems of animal physiology.

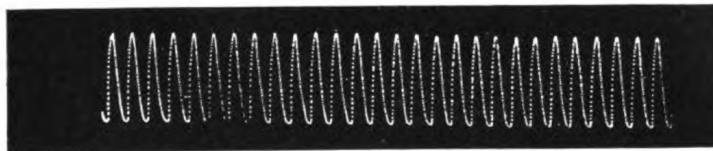


FIG. 10.

Record of automatic pulsations in *Desmodium gyrans*.

(V) SIMILARITIES BETWEEN RHYTHMIC PULSATIONS IN PLANT AND ANIMAL.

In *Desmodium gyrans*, or the telegraph plant, the small lateral leaflets exhibit automatic pulsations. I find that the characteristics of the rhythmic tissues in the plant are surprisingly similar to those of the cardiac tissue in the animal. The down-movement of the leaflet is quicker and corresponds to the systolic movement of the heart. The maximum rate of this down movement is 0.9 mm. per second. The diastolic or up movement is much slower, its maximum rate being 0.56 mm. per second. The pulsating activity of the detached heart of a frog can be maintained for long periods by subjecting it to intercardiac pressure. Similarly the activity of the detached leaflet of *Desmodium* can be renewed by the application of internal hydrostatic pressure, after which the pulsation can be maintained uniform for many hours (fig. 10).

(1) *Refractory Period.*

The cardiac tissue of the animal has a long refractory period. The tissue takes no account of the stimulus which falls within the refractory period. This is also characteristic of the response of the rhythmic tissue of *Desmodium*. Rhythmic tissues, animal and vegetable alike, are incapable of tetanus. The pulsating leaflet of *Desmodium*, like the pulsating heart, is more susceptible to excitation at diastole than at systole. An extra pulsation is induced in both by an induction shock, applied during the diastolic phase.

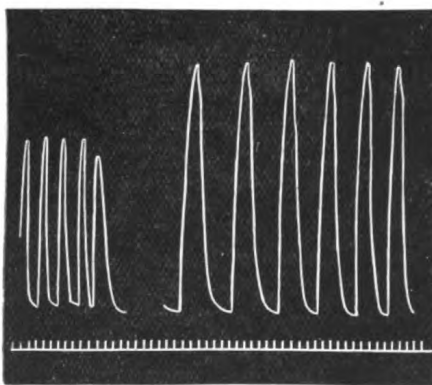


FIG. 11.

Effect of lowering of temperature in producing increase of amplitude and decrease of frequency in pulsation of frog's heart. Record to left, normal pulsations; record to right, effect of lowered temperature (Brodie).

(2) *Effect of Ligature.*

By the application of Stannius's ligature, the pulsation of the heart is arrested at diastole. A similar arrest at diastole is found to take place in the pulsation of *Desmodium* by the application of a ligature immediately below the motile organ. The arrest takes place either at once or after one or two vigorous beats. Similar effects are also obtained by making a cut, after suitably supporting the leaflet. While the leaflet is in the condition of this arrest, it is often possible to renew the pulsation by the stimulus of an electrical shock.

(3) *Effect of Temperature.*

The effect of lowering of temperature on the rhythmic pulsation of *Desmodium* is similar to that on the pulsation of a frog's heart.

Lowering of temperature enhances the amplitude, but reduces the frequency of pulsation of both. A rise of temperature, on the other hand, causes enhanced frequency and diminished amplitude of pulsation (figs. 11, 12).

We have seen the extraordinary similarities of physiological reaction in the contractile, the conducting, and the rhythmic tissues of plant and animal. We shall now take up the reactions of the plant under medical treatment. This latter includes the application of electricity and drugs; we shall therefore consider in some detail the stimulating or depressing effects induced by an electrical current and the stimulating, depressing, narcotic and poisonous effects of various drugs on the plant.

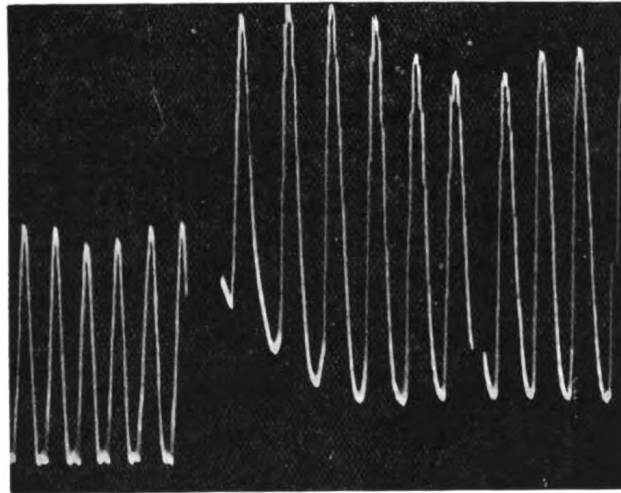


FIG. 12.

Effect of lowering of temperature on pulsation of *Desmodium*. Record to left, normal; record to right, effect of lowered temperature.

(VI) EFFECT OF ELECTRICAL CURRENT ON PLANT-RESPONSE.

The sensitiveness of some plants to the stimulus of an electrical current is extraordinarily high. The human tongue is known to be an extremely sensitive detector of an electrical current, the tongue of an average European detecting a current as low as 6 micro-amperes. But we must bow down to the superior perceptive power of the plant, which in the case of *Biophytum*, for example, is ten times more sensitive than the European!

(1) *Polar Reactions on Contractile Tissue.*

As regards the action of constant current in inducing excitation of the contractile plant-tissue, I find that with feeble current, it is the kathodic point which excites at the make and not at the break of the current; the anode excites at neither make nor break. With current of moderate intensity, the kathode still excites at make and not at break. The anode, however, now induces excitation at the break but not at the make. In all these we have a series of reactions which are identical with those which take place in the contractile animal tissue.

(2) *Contrasted Effect of Anode and Kathode on Pulsating Tissues.*

Taking the case of rhythmic tissues in the animal, the point of application of anode on a beating heart induces an expansion. The effect of the kathode would be the opposite.

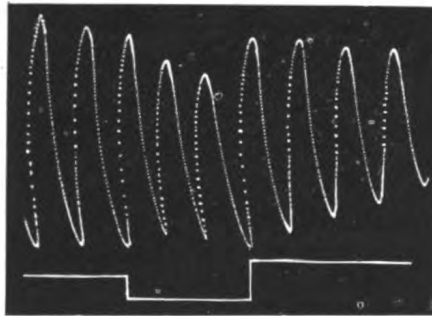


FIG. 13.

Alternate effects of anode and kathode in diminishing systolic contraction and diastolic expansion. Continuous line below record indicates duration of application of current. Line below normal represents application of kathode; line above, application of anode.

Similar effects are also observed in the pulsating leaflets of the telegraph plant. Thus, the application of anode, inducing expansion, tends to oppose the contraction at the systolic phase. The effect is a diminution of contraction. In the record shown in fig. 13 the up-movement represents contraction and the down-movement expansion. The diminution of contraction under anode thus appears in the record as progressive diminution of heights of responses. The application of kathode, on the other hand, inducing contraction, opposes the diastolic

expansion; the amplitude of pulsations is seen progressively reduced with continuously diminishing relaxations, the base-line being shifted in consequence.

(3) *Inhibitory Effect of Transmitted Electric Stimulation.*

The pulsation of the beating heart may be inhibited by the stimulation of the vagus nerve. The rhythmic pulsation of *Desmodium* leaflets may similarly be inhibited by applying electrical stimulation at some distance from the pulsating organ. This is seen in fig. 14, where the inhibitory effect of transmitted excitation is seen to diminish the normal amplitude of pulsation. On the cessation of excitation the pulsations are seen gradually to regain their normal amplitude.

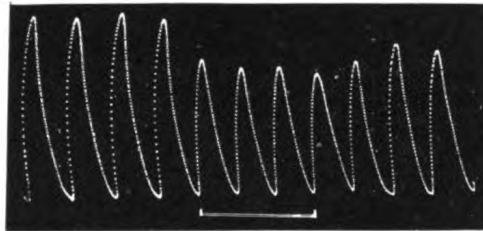


FIG. 14.

Inhibitory effect of transmitted excitation on the pulsation of leaflet of *Desmodium*. Line below indicates duration of transmitted excitation. Note the gradual removal of inhibitory effect on cessation of stimulation.

(VII) EFFECT OF CHEMICAL AGENTS ON THE RESPONSE OF CONTRACTILE TISSUE.

For this investigation a series of uniform responses is first obtained under uniform stimuli. After the application of the given agent, another series of responses is once more obtained under the same stimuli as before. The variation of amplitude of response then gives an indication of the excitatory or depressing action of the agent. The plant is intensely susceptible to the impurities present in the air. The vitiated air of the town has a very depressing effect. According to popular science, what is death to the animal is supposed to be life for the plant; for does it not flourish in the deadly atmosphere of carbonic acid gas? The record (fig. 15) shows that, instead of flourishing, the plant gets suffocated just like a human being. Note the gasp

of relief when fresh air is introduced. Only in the presence of sunlight is this effect modified by photosynthesis. In contrast to the effect of carbonic acid, ozone renders the plant highly excitable. Sulphuretted hydrogen, even in small quantities, is fatal to the plant. Chloroform acts as a strong narcotic, inducing a rapid abolition of excitability. The ludicrously unsteady gait of the response of the plant (fig. 16) under alcohol could be effectively exploited in a temperance lecture! The record (fig. 17) is in the nature of an anticlimax, where the plant has drunk (pure water!) not wisely but too well. The gorged plant is seen to have lost all power of movement. I was, however, able to restore the plant to normal condition by extracting the excess of liquid by application of glycerine.

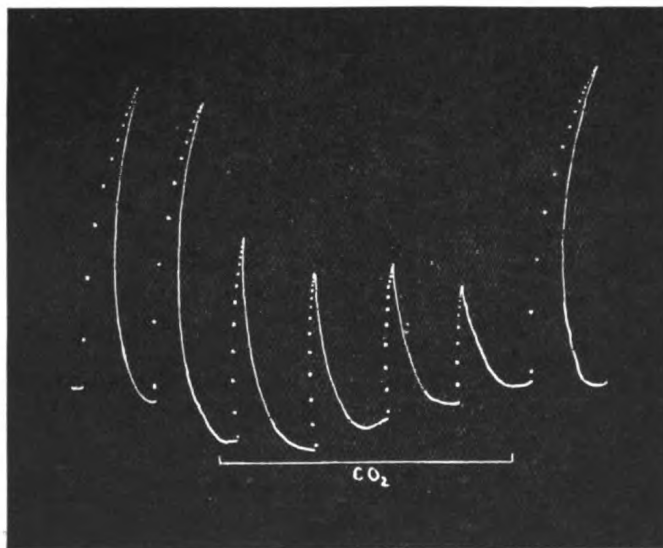


FIG. 15.

Effect of carbonic acid gas.

(VIII) EFFECT OF DRUGS ON THE CONDUCTING NERVE.

I have already described how the variation of conducting power in *Mimosa* is obtained from the automatic records of velocity of transmission of excitation. The arrival of excitation here is signalled by the sudden fall of the leaf. Investigation by method of mechanical response is possible in the case of the so-called sensitive plants. For ordinary plants the motile indicator is not available and an electrical method, to be presently described, has to be employed in such a case.

(1) *Effect of Poison in the Abolition of Conduction.*

Below I give a record which exhibits the effect of poisonous reagents in inducing retardation and subsequent abolition of the conducting

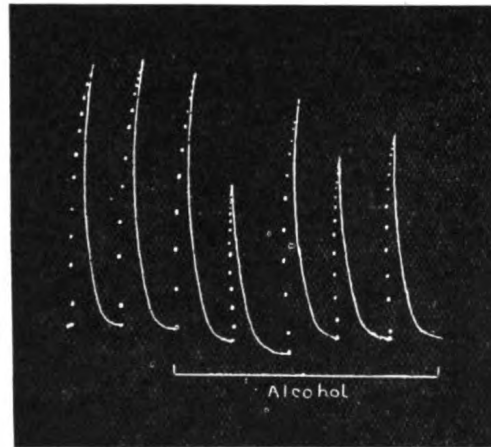


FIG. 16.
Effect of vapour of alcohol.

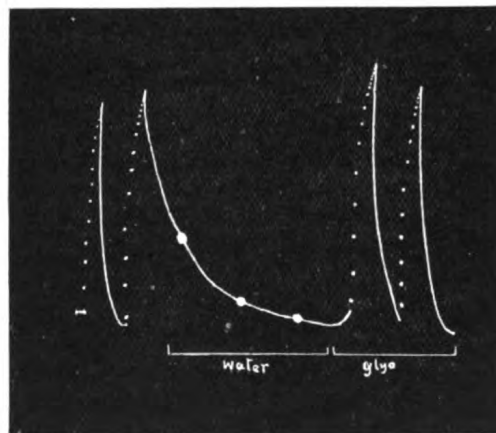


FIG. 17.
Abolition of motile excitability by excessive absorption of water, and subsequent restoration by withdrawal of excess.

power. In the experiments, the record of which is given in fig. 18, copper sulphate solution was applied locally on a portion of conducting petiole, 10 mm. in breadth. It must be remembered that a certain

time must elapse before the toxic agents will get access to the conducting tissue in the interior by absorption. The effect of the toxic agent will thus be increasingly effective with time. Record (1) in the figure shows the normal record for transmission of excitation to a distance of 30 mm., the successive dots representing intervals of 0·1 second. Record (2) was taken after twenty minutes' application of the copper sulphate; the transmission period is seen to be prolonged, indicating growing depression of conductivity. Record (3) was taken forty minutes after the application. The transmitted effect is seen to be completely blocked by the action of the poison. In order to show that the absence of response was due not to the abolition of motile excitability of pulvinus, but to the block of conductivity in the petiole,

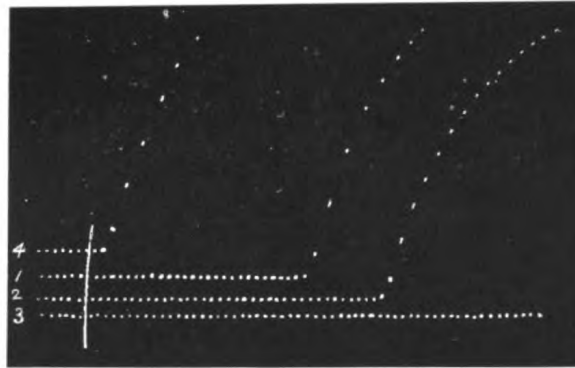


FIG. 18.

Effect of copper sulphate solution in the retardation and final arrest of conduction. 1, normal record; 2, retardation after twenty minutes' application; 3, arrest after forty minutes; 4, record of direct stimulation.

a fourth record was taken under direct stimulation, which proves that the motile excitability of the leaf had remained unimpaired.

It is interesting to note that the abolition of conducting power takes place quicker under the action of poisons which are more virulent. Thus under the action of potassium cyanide solution the conducting power was abolished in a period of application as short as five minutes.

(2) *The Conductivity Balance.*

For demonstrating the universality of nervous conduction in plants I have experimented on isolated conducting tissue of ordinary plants,

the method of investigation being electrical. And for this purpose I have devised a new method of extreme delicacy, known as the Method of Conductivity Balance. An isolated conducting strand of the plant is taken and stimulus applied about the middle. Excitatory waves travel along both arms of the balance through the conducting regions to the right, and also to the left, and induce excitatory electro-motive effects at two responsive points. The excitatory electrical effects at these points are opposed, and when they are equal they balance one another, the resulting galvanometric indication being reduced to zero. Exact balance is produced by bringing the stimulator nearer one of the two responsive points. In order to study the influence of an agent on conductivity, we first take a balanced record, and then apply the given reagent on a short length of the conducting arm, say, to the right.

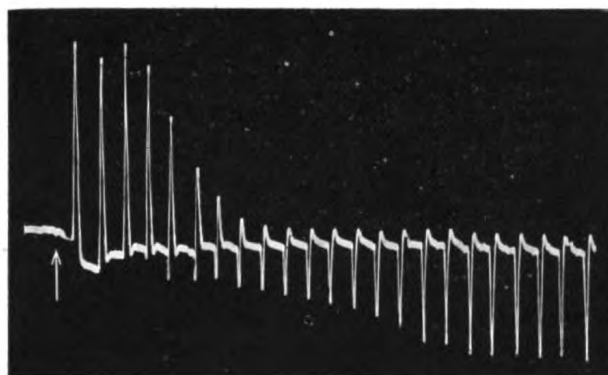


FIG. 19.

Record of effect of dilute solution of Na_2CO_3 on variation of conductivity. Record commenced with exact balance; reagent applied on right arm at moment marked by arrow. Note immediate enhancement of conductivity giving rise to up-curves, followed by depression exhibited by down-curves.

If the effect of the agent be to induce an enhanced conducting power the excitation transmitted to the right will be greater, there will be *overbalance* to the right, and the response caused by the upsetting of the balance will be upward. But if the agent had caused a depression of conduction there would be an *underbalance*, and the resulting response would be downwards. In this way we can study the accelerating and retarding effects of various drugs on conduction of excitation (fig. 19). Again, we can compare the relative effects in conductivity-variation brought about by different agents, which are applied simultaneously, the record giving us a continuous graphic

illustration of the relative and varying effects of the two, one on the arm R, the other on L.

We may similarly compare the conductivity and excitability changes induced by the same reagent.

(IX) EFFECT OF DRUGS ON THE PULSATION OF RHYTHMIC TISSUE.

In studying the effect of chemical agents in the form of gases and liquids, automatic records of pulsation are first taken under normal conditions, and the gases and vapours subsequently introduced into the plant chamber, or the liquid agent applied internally or externally. Internal application may be secured by forcing in the solution at the cut end of the petiole by means of hydrostatic pressure.

As regards the action of ether, the effect of very diluted vapour is generally to induce a transient exaltation, followed by depression and arrest of pulsation. If the leaflet be subjected to strong vapour and if



FIG. 20.

Arrest of pulsation of *Desmodium* under ether; restoration of pulsation on blowing off ether. The arrow indicates the time of application.

the application be prolonged the arrest is apt to be permanent. But if diluted vapour be employed and fresh air substituted immediately after the arrest, then there is a slow revival of pulsation (fig. 20). The effect of chloroform is similar to that of ether, its reaction, however, being far more toxic; a slight excess in the application is attended by a permanent arrest of pulsation.

This and numerous other reactions exhibit the remarkable similarity in the effect of various chemical agents on the animal and vegetable tissues. A very striking characteristic is the antagonistic reaction of acid and alkali on the animal heart. Application of very dilute acid induces in the heart an atonic reaction, in consequence of which there is brought about an arrest of pulsation in the relaxed or diastolic condition. The action of dilute alkaline solution is the very reverse of this—namely, a tonic contraction and arrest in systole (figs. 21 and 23). I find these effects repeated in an astonishing manner in the pulsation of



FIG. 21.

Arrest of pulsation of the heart of frog in diastole by the action of dilute lactic acid (Gaskell). Record to be read from right to left in this and following figures.

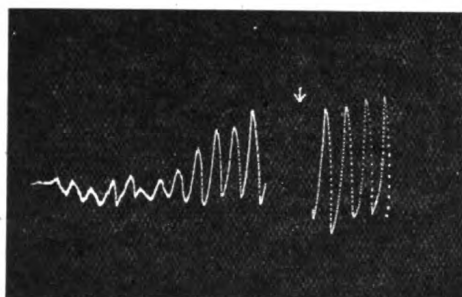


FIG. 22.

Arrest of pulsation in *Desmodium* in diastole by the action of dilute lactic acid.



FIG. 23.

Arrest of pulsation of heart in systole by the action of dilute NaHO (Gaskell).

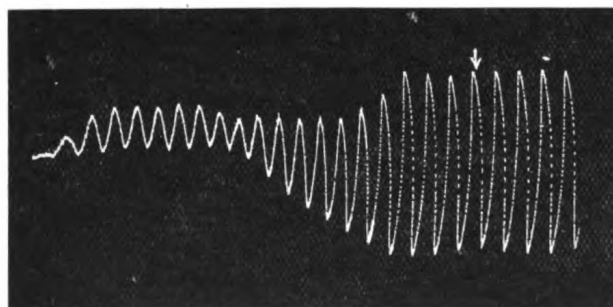


FIG. 24.

Arrest of pulsation of *Desmodium* in systole by the action of dilute NaHO.

Desmodium. The internal application of dilute solution of lactic acid is seen to induce an arrest in a state of diastolic relaxation (fig. 22). The application of dilute NaHO solution, on the other hand, induces exactly the opposite effect—i.e., an arrest at systole (fig. 24).

(X) MODIFYING INFLUENCE OF DOSE.

Another striking result that came out in my investigations on plant reactions is the modification of effect brought on by the strength of the dose. Thus, a poisonous reagent which caused depression or death was found to act as a stimulant when administered in minute quantities.

As regards application of electrical current in medical practice, it is assumed that Pflüger's law, that it is the kathode that excites and anode that causes depression, is universally applicable. I find, however, that here, too, the strength of the current is a very important determining factor. Though the application of the anode causes depression with moderate currents, the reaction is completely reversed when the intensity of current exceeds a certain limiting value.

The very great importance of the influence of intensity on the character of reaction was exhibited in a still more striking manner in my investigation on enhancement or depression of nervous conduction. The application of positive polar force induced, as we have seen, an enhancement, and the negative force a depression, in the conducting power, culminating in its complete arrest. But the result was subject to great modification dependent upon the intensity of the force. When the positive force was gradually increased, the conducting power was also increased till it reached a critical point; beyond this there was produced a complete reversal. The force which had hitherto caused an enhancement now caused a profound depression when carried beyond the critical point and finally brought about arrest of conducting power. The application of a negative force also led to a similar cycle of change. The increasing intensity caused enhanced depression; beyond a critical point the effect was reversed into increased conductivity above the normal. It will thus be seen that want of knowledge of the critical factor may bring about a result exactly the opposite of what was intended.

(XI) THE MOLECULAR CYCLE.

We have seen how two precisely opposite results may be brought about by an identical drug or by an electrical current, owing to the

varied strength of application. There is, however, still another obscure factor which creates great perplexity. A given agent may cause a certain effect on one individual and an altogether different effect on another—"what is one man's meat is another man's poison." This difference is considered in some mysterious manner to be due to the varied constitutions of the individuals. As a concrete example I may cite the different reactions given by three batches of seedlings primarily similar. These were kept for some time under three distinct conditions and afterwards subjected to the action of a given dose of dilute poison. The first batch succumbed to the poison immediately; the second struggled for a time against it, recovered and exhibited a moderate rate of growth afterwards. But the third batch was actually stimulated by the poison and demonstrated this by invigorated growth!

Why should we find this difference? We must remember that the living tissue is not merely a mass of inert matter, but is a complexus of matter and energy held latent. The tissue may thus exist under widely different conditions, according as to whether it has been rendered active by the stimulating influence of its environment or reduced to a state of lethargy through being deprived of this. The source of stimulus here referred to includes every cause, internal or external, which brings about excitation. From the normal state of vigour the condition of the tissue may, according to circumstances, be carried to two opposite extremes—the state of inanition through lack of stimulation, and the state of exhaustion through excess of stimulation. Between these two extremes are numerous gradations of tonic condition in the living tissue, these being determined by its past history; and it is impossible to predict what the answering reaction of the organism will be unless we know the exact position of the tissue in the scale of tonicity.

How, then, are we to obtain some measure of this obscure internal condition? There are two conceivable ways in which this could be attempted. One, by the study of outward posture or appearance of the organism; and second, by the character of its answers to testing shocks.

A trained observer may be able to draw his inferences more or less accurately from outward appearances, but with plants we can depend on something more definite than this rule-of-thumb procedure. In the most favourable tonic condition of *Mimosa*, for example, the leaf is held out at a certain angle determined by the tonic contraction of the tissue. When the plant is kept completely isolated from all sources of stimulation

it grows atonic, the tissue becomes relaxed, this being outwardly exhibited by the abnormally erect posture of the leaf. The plant is brought once more to a normal condition when subjected to the action of stimulus, the leaf once more occupying its normal outspread position. Under further stimulation the contractile movement reaches a limit, and when stimulation is carried to excess, the contractile movement of fall is reversed into erectile movement of relaxation. If we had attached a recording lever we should have found a complete curve traced, something like this:—

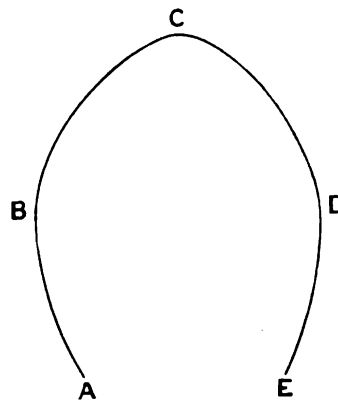


FIG. 25.

Characteristic cyclic curve showing growing contraction brought about by increasing stimulus from atonic A to C through subtonic B; subsequent reversal under over-stimulus; D moderate, E excessive fatigue.

In the study of this curve it should be remembered that, on account of the method of record employed, the up-movement of the leaf is shown by the descent of the curve and vice versa. These outward manifestations are the expressions of internal molecular change of a physico-chemical character, and the cyclic curve representing the varied conditions of the tissue I shall refer to as the *Cyclic Molecular Curve*.

It will be seen from the diagram that a point in the ascending has a corresponding point in the descending curve. From this we can see how liable we are to draw a wrong inference from exclusive reliance on outward appearance or posture; for example, the parallel relaxed positions of A and E may have been brought on by two diametrically opposite conditions—i.e., extreme atonicity as at A, over-fatigue as at E. In order to restore the tissue to the normal, the aim should be to bring it to the optimum condition C. For

this, diametrically opposed treatments are necessary, depending on the question of whether the tissue is at **A** or **E** condition. If it be at **A** stimulation is necessary, if at **E** rest or sedative treatment. But if we mistook **E** for **A** and applied further stimulation, the case would have ended fatally through extreme exhaustion, while the other mistake would have been equally unfortunate for the plant, which would have met an untimely end through excessive inanition.

Turning next to the second method by which the changing condition of the tissue may be found from the progressive modification of replies to a testing stimulus, it is extremely interesting to find that corresponding to the molecular cycle which has been referred to, there is a concomitant cyclic variation of response. In fig. 26 I have given

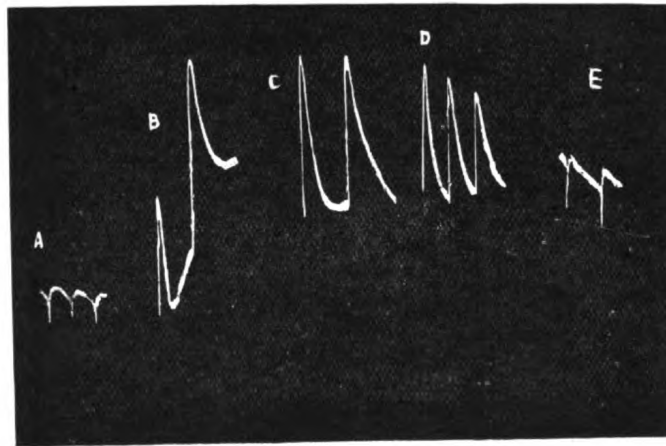


FIG. 26.

Typical responses under different molecular conditions, **A**, **B**, **C**, **D**, and **E**.

the characteristic responses of the tissue under varying molecular conditions typical of **A**, **B**, **C**, **D**, and **E**. I may say here that these results have been verified by experimenting on various kinds of tissues, the methods of investigation employed being so different as the electrical and the mechanical.

In describing the changes of response corresponding to changes in the molecular condition of the tissue, I shall for the sake of simplicity designate all normal response by contraction or by galvanometric negativity as the *negative* response; its converse—i.e., response by relaxation or galvanometric positivity—will be termed *positive* response. Beginning with the case of extreme sub-tonicity corresponding to the

point **A** in the cyclic curve, we find a maximum variation from the normal, the response being abnormally *positive*. Continued stimulation improves the general tone from a condition of relaxation to a growing tonic condition and converts abnormal positive to normal negative.



FIG. 27.

Record showing effect of stimulus modifying tonicity. Growing relaxation or atonicity arrested by stimulus at thick dot. After-effect of this induced moderate contraction. Subsequent stimuli gave rise to staircase increase in response.

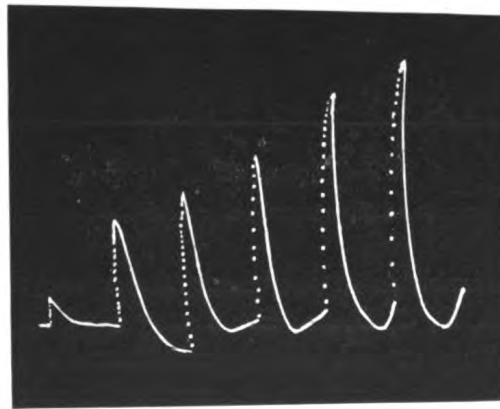


FIG. 28.

Staircase increase of response in **B** stage.

In fig. 27 stimulus applied at the thick dot is seen to arrest growing relaxation in an atonic specimen of *Mimosa*. After this, successive stimuli give rise to staircase response. At the phase corresponding to **B**, the condition of sub-tonicity is moderate; stimulus removes the

inertness and confers on it an increasingly better tone. Hence the characteristic response at this stage is a staircase enhancement (fig. 28) culminating in the optimum condition **C** (fig. 29). The highest point of the molecular cycle is thus reached. Further stimulation, strong and long continued, completes the other half of

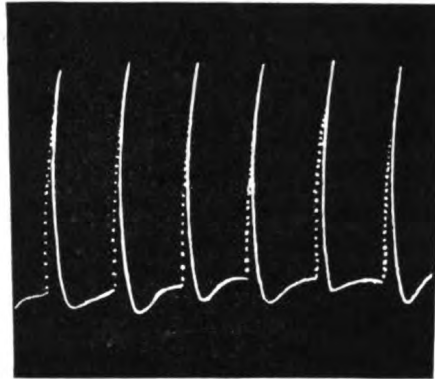


FIG. 29.

Uniform response in **C** condition.

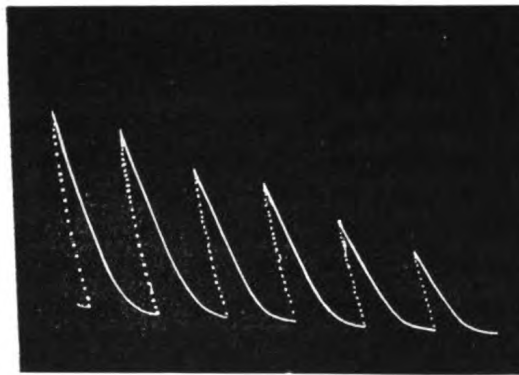


FIG. 30.

Exhibition of fatigue in the **D** stage.

the cycle, now of descent. During this descent the response at first undergoes a change from negative to less negative; that is to say, there is an appearance of fatigue (fig. 30). Again, under excessive stimulation the response may decline to zero, or even undergo a reversal to abnormal *positive*. As in the characteristic curve so also

in the series of responses, the two halves of the cycle are strangely alike, one being as it were the reflection of the other. The cycle begins with extreme sub-tonicity due to lack of stimulation and ends with exhaustion brought on by excessive stimulation. The starting point of the one may be supposed to meet the end of the other in a common fatality. But though the one half thus mimics the other there is, as it were, a polar difference between the two, by reason of the difference in their past histories, necessitating treatment which must be diametrically opposite according as the tissue happens to occupy the beginning or end of the cycle.

Thus it is clear that the progress of medicine may be greatly facilitated when the attention of investigators is drawn to the importance of the molecular aspects of the phenomena with which they have to deal. Thus in examining the action of drugs a threefold question is seen to rise. It must first be determined what is the nature of the reaction induced by the given agent under normal conditions. The second matter of inquiry is what is the critical dose above and below which opposite effects are brought about? And finally, as the nature of the response is profoundly influenced by the position which the tissue then occupies in the curve of molecular cycle, it follows that the most important element in the application of a curative agent will be in the determination of the place of the tissue in the cyclic curve.

I have given, this evening, accounts of various experiments which seem to bring the plant much nearer to us than we ever thought. We find that it is not a mere mass of vegetative growth, but that its every fibre is instinct with sensibility. We find it answering to outside stimuli, the responsive twitches increasing with the strength of the blow that impinges on it. We are able to record the throbbings of its pulsating life, and find these wax and wane according to the life-conditions of the plant, and cease with the death of the organism. We have seen how the whole plant is made one by conducting threads, so that the tremor of excitation initiated in one place courses through the whole; and how this nervous impulse, as in man, can be accelerated or arrested under the several actions of drugs and poisons. In these and many other ways the life-reactions in plant and man are alike: and thus, through the experience of the plant, it may be possible to alleviate the sufferings of man.

Sir HENRY MORRIS expressed his great appreciation of Professor Bose's lecture and invited discussion, but before the discussion began he wished to call the attention of the Fellows present to the fact that they had with them a number of their Belgian confrères. He felt sure that it would be the wish of the Society to give these gentlemen a very hearty welcome, and to express to them the high appreciation the profession, in common with all His Majesty's subjects, felt for their heroic nation, and the deep sympathy they all felt for the terrible sufferings they had borne at the hands of their barbaric invaders.

Dr. PHILIPPE: Monsieur le Président, Mesdames et Messieurs,—C'est de cœur étreint d'une profonde émotion, qu'au nom des médecins belges réfugiés à Londres je prends la parole pour remercier de tous les élans de notre cœur reconnaissant l'illustre Société Royale de Médecine. La grande faveur que la célèbre compagnie accorde à nos confrères, en nous recevant avec l'insigne honneur de cette séance, restera gravée dans nos cœurs, et nous prions encore Monsieur le Président, Mesdames et Messieurs, d'agréer ici le témoignage de notre infinie gratitude. Quelle consolation pour nous, au moment où la plus affreuse détresse étreint notre malheureuse patrie, de trouver au sein de votre Société comme un coin de notre foyer familial où les cœurs anglais battent à l'unisson des notres. L'admirable élan de générosité de votre noble pays a trouvé toutes les délicatesses; car après avoir offert à nos compatriotes l'hospitalité la plus touchante, voici que vous apportez à mes confrères, plus éprouvés peut-être par l'absence de toute action intellectuelle que par les privations matérielles, le pain de la pensée, qu'ils iront cueillir dans vos bibliothèques merveilleuses et les laboratoires que votre confraternité idéale met à notre disposition. Monsieur le Président, Mesdames et Messieurs, jamais la Belgique n'oubliera les chaleureux sentiments d'altruisme que la Grande-Bretagne lui a montrés en ces abominables et tragiques journées. Quand notre pauvre patrie broyée se redressera, croyez-le bien, chers amis et alliés, la Belgique lavée des infames souillures de l'étreinte germanique, saura reconnaître solennellement, dans un élan d'infinie gratitude, la réception inoubliable que votre admirable pays a réservé à ses enfants, écrasés peut-être aujourd'hui, mais toujours invaincus.

Sir LAUDER BRUNTON: Mr. Chairman, Ladies and Gentlemen,—I am sure we have all listened with very great interest and profit to Professor Bose's admirable exposition of his wonderful experiments. Personally, I think perhaps my pleasure is all the greater because just fifty years ago I made some experiments upon the movements of plants myself, but the crudeness of those experiments compared with the refinement and accuracy of Professor Bose's makes one feel that within the last fifty years the physiology both of plants and animals has become practically a new science. My attention was attracted to the effect of drugs upon plants when I learned in 1863 that the late Sir James

Simpson had found that chloroform given quickly to a sensitive plant would cause the leaflets to shut up and the leaf to fall in consequence of the irritation, just as chloroform given in the same way to a person would probably cause irritation and struggling. But if chloroform were given very gently to a sensitive plant it seemed to produce no irritation at all. The plant remained apparently absolutely unaffected, but on giving it a gentle stroke it was no longer sensible to the stimulus, just as a patient chloroformed in the same way would go quietly over without struggling, but would become insensitive to pain. For a number of years, practically no important advance was made in our knowledge of the movements of plants, until 1874, when Sir John Burdon Sanderson¹ observed that the sudden closure of the leaf in Venus's fly-trap was accompanied by electrical changes similar to those that occurred in muscle. In 1882 he gave a fuller description of his work in a lecture to the Royal Institution, republished in his memoir. He there showed the existence of a latent period, of transmission of stimuli in the plant, and of a special irritability in some cells. The transmission of stimuli had been previously explained by the passage of fluid from one part of the leaf to another, and in 1882 Douglas Cunningham² showed that the cells in *Mimosa* were very porous, so that such passage was very easy. Almost simultaneously, however, Walter Gardiner³ showed that there was continuity of protoplasm between the cells, a kind of protoplasmic network which might act as a conductor of stimuli. Sanderson says in his lecture, "Everyone who looks at a sensitive plant or the fly-trap is led to exclaim 'If it had nerves we could understand it.'" This was my own view fifty years ago, and I find that in an essay "On the Movements of Plants," which I wrote in 1865, a year after I had begun to experiment upon them, I said, "When I began to write this essay I had the inclination to the belief that plants as well as animals have a nervous system, but I now think that if they do possess something analogous to it, it is very different in kind." I think that although Professor Bose has spoken of the transmission of stimuli in *Mimosa* as nervous, he uses the term colloquially to explain his meaning, just as he has sometimes used the term muscular in this lecture when speaking of the pulvinus. For he himself has measured the time required for the transmission of stimuli and has shown that in *Mimosa* it is about 20 or 30 mm. per second, whereas in the nerves of animals it is about 27 metres per second—i.e., a thousand times as quick in nerves as in the plant—so that although there is great similarity in the effects, the time required is very different, and in the plant the conduction-time is more nearly allied to that of partially differentiated protoplasm, like the bundle of His and Stanley Kent in the heart, than to that in ordinary nerves.

Professor Bose's experiments on the curious resemblance between the movements of *Desmodium gyrans* and the heart are entirely new and very

¹ "Sir John Burdon Sanderson : a Memoir," Oxford, 1911, pp. 190, 191, 195.

² Douglas Cunningham, *Proc. Roy. Soc.*, 1882, xxxiv, p. 268.

³ Walter Gardiner, *Proc. Roy. Soc.*, 1882, xxxiv, pp. 174, 272.

striking indeed; but more remarkable still, I think, is his extraordinary widening of our conception of life and of sensitiveness, not only extending it to plants which have no power of movement, such as cabbage or carrot, but even in some of his other writings to inanimate things. He seems really to show the correctness of some of the very old views of the universe to which we have attached, of late years, but little importance. In Kingsley's "*Hypatia*," the hero talks of the earth as being sensitive and feeling when the ploughshare is dragged over its surface; but a still wider conception is that of St. Paul, who extends the idea of sensation to the whole universe when he says, "For we know that the whole creation groaneth and travaileth together in pain until now."

Professor Bose himself would trace the idea much farther back in the world's history than the time of St. Paul, for in a lecture on stimuli which he gave at the Royal Institution in 1901 he said, "It was when I came upon the mute witness of these self-made records and perceived in them one phase of a pervading unity that bears within it all things—the mote that quivers in ripples of light, the teeming life upon our earth, and the radiant suns that shine above us—it was then that I understood, for the first time, a little of that message proclaimed by my ancestors on the banks of the Ganges thirty centuries ago. They who see but one in all the changing manifestations of this universe, unto them belongs Eternal Truth—unto none else, unto none else."

I think that both from what he has shown and what he has suggested Professor Bose's experiments are most remarkable and open up a field of knowledge and conjecture such as almost amounts to an introduction into a new world.

I have very great pleasure indeed in moving a hearty vote of thanks to him for his admirable lecture.

Dr. LEES: I have much pleasure in seconding the vote of thanks which has been so eloquently moved by Sir Lauder Brunton. We are grateful to Professor Bose for the instructive and suggestive lecture to which we have listened, and for the demonstration by which it has been illustrated. He has given us much food for thought. He has shown us that the fundamental processes of life revealed to us in the animal by the science of physiology can also be detected in the plant, that Death is as definite an event in the vegetable as in the animal, and that in both there is a mysterious connexion between Life and electricity. Thus we are brought to the conception of the essential unity of Life in all its very varied developments, in the simplest vegetable organism and in the most highly organised animal. And when we remember the modern electrical theory of the Matter on which Life is continually operating, we begin to understand the importance of the electrical accompaniments of Life. Professor Bose has proved to us that the plant, like the animal, has its nocturnal sleep; that it can exhibit evidence of fatigue, which can be removed by a temporary rest; and that it is susceptible to the influence of

drugs. Of special interest is his demonstration of the opposing action of acid and of sodium bicarbonate on the vegetable tissues, which he has shown to be analogous to the opposing action of these drugs on the heart of the frog, as demonstrated by Dr. Gaskell many years ago, and illustrated by their action in disease in the human subject. In every case of acute and subacute rheumatism the left ventricle is dilated by the action of the acid toxin generated by the rheumatic diplococcus, and the influence of large doses of sodium bicarbonate in diminishing this dilatation and increasing the tone of the ventricular wall is an important fact in therapeutics. It is even more remarkable that in at least one plant a rhythmic pulsation of leaflets, analogous to the automatic pulsation of the animal heart, can be observed, and that Professor Bose finds this rhythmic pulsation in the plant susceptible to external influences just as is the automatic pulsation of the heart of a frog. Does not this throw a new light on that fundamental fact of animal physiology, the cardiac pulsation, which is one of the earliest developments of foetal life, beginning before the muscular or nervous structures of the heart have been differentiated? We desire to express our thanks to Professor Bose for the trouble he has taken in coming so far in order to give us this demonstration of the results of his scientific investigation.

The Royal Society of Medicine.

March 30, 1915.

Dr. FREDERICK TAYLOR, President, in the Chair.

An Address on Wound Infections; and on some New Methods for the Study of the various Factors which come into consideration in their Treatment.

By Colonel Sir A. E. WRIGHT, M.D., F.R.S.¹

THERE are a number of quite elementary problems which must be solved before we can arrive at any really effective treatment of wound infections. A very brief consideration of the facts will bring us face to face with the questions to which we have to find an answer.

EVOLUTION OF WOUND INFECTIONS.

In this war practically every wound is heavily infected. The chain of cause and consequence seems to be as follows: The clothes and skin of the soldier on war service become contaminated with all manner of filth containing pathogenic organisms and spores; the projectile takes these in with it, and it implants them far beyond the reach of any prophylactic applications of antiseptics.

A cultivation medium is now provided by the blood and lymph which are poured out into the track of the projectile; and we find in the wounds—I have in view here wounds examined immediately after arrival from the front—a mixed infection of a streptococcus with microbes derived from the fæces. This fæcal infection is a special outstanding feature in this war.

Among many species of intestinal microbes which have been found in wounds, two have a quite special importance. One is the *gas-phlegmon bacillus*, or *Bacillus aerogenes capsulatus* of Welch—a large Gram-staining, anaerobic and actively gas-forming microbe. It is found

¹ A Consulting Physician to the Expeditionary Force. (From the Research Laboratory attached to No. 13 General Hospital, Boulogne-sur-Mer.)

both in infiltrated superficial wounds and in deep wounds, and is particularly abundant in the frothy and offensive fæcal-looking discharges which anaerobic wounds furnish. The other is the tetanus bacillus. This is more rarely encountered, and is also much less abundant in the discharges. Sometimes, however, it may show up in every field of the microscope.

The presence of the streptococcus and these two fæcal microbes makes the first period of the wound infection—the period of imprisoned discharges—a specially critical time for the patient. During this the streptococcus may invade the tissues, and set up cellulitis or, more rarely, erysipelas. Or the tetanus bacillus may find opportunity to grow out and manufacture its poison and induce tetanus. Or the bacillus of Welch may make its way into the body and set up a gas-phlegmon in the region round about the wound, and an obstructive gangrene in the distal portion of the limb. Or, again, the bacillus of Welch and the streptococcus may join forces, and may in conjunction produce the gas-phlegmon or cellulitis.

As soon as a free outlet has been provided, and aerobic conditions have been established in the wound, its bacterial flora changes. The ordinary pyogenic infection, which has up to this been in abeyance, now gains the upper hand, and instead of an "*infection of the imprisoned discharges*," or, as the case may be, *an infection of tissues*, we have now an "*infection of the granulating wound surfaces, and of the flowing discharges*." The chief bacterial agents here at work are the streptococcus and staphylococcus, and *Bacillus proteus*.

This pyogenic infection may, after lapse of time, subside—the wound healing up when this occurs; or the mixed infection may narrow itself down to a streptococcic infection and become chronic, the wound in this case remaining open indefinitely in the form of a discharging sinus. Or, lastly, when there is an obstructed outflow, the infection may go from bad to worse until the patient succumbs to continued suppuration and septicæmia.

SOME FUNDAMENTAL CONSIDERATIONS IN REGARD TO TREATMENT.

Those are, in very brief summary, the facts with regard to the evolution of wound infections, and I would venture, in passing on to discuss with you their treatment, to remind you that the ideal we ought to approximate to is the healing of the wounds by *first intention*—that is, without sensible interference by bacterial infection; and that so far

are we from the attainment of that ideal that nearly all our wounded are suffering from bacterial infections; that very many are ill of these infections; and that not a few are, through these, in danger of their lives.

We have at our disposal for the treatment of these wound infections three distinct therapeutic measures. Let me enumerate them in the order in which they would naturally suggest themselves to you.

First in that serial order would come *treatment by antiseptics*. After this would come what I propose to call *treatment by physiological methods*—I mean procedures such as the opening and draining of the wound—which bring the antibacterial powers of the blood to bear on the infecting microbes. And lastly would come the reinforcement of the antibacterial powers of the blood, that is, *treatment by vaccine therapy* and similar methods. I believe it is really above all question that of these three the second is beyond all comparison the most important, and I would submit that—all loud talk about antiseptic treatment notwithstanding—this is at best an ancillary method of treatment. And of course the same applies also to treatment by vaccines.

Let me also here suggest to you another quite fundamental consideration. It is this: It will be clear that we cannot apply physiological treatment aright, nor can we use any antiseptic or vaccine to best advantage in wound infections, unless we first understand the physiological processes going on in the wound. We do not understand these yet even in outline.

It will therefore be necessary to address ourselves to the task of discovering what goes on in the wound and of following up its biological evolution. And the only way of doing this will be to formulate to ourselves in clear terms the questions which want answers; then to consider how to set to work to get our answers—for merely looking at the wound will not help; and finally to take cognisance of the results which the experimental methods I am about to describe to you have already yielded.

Our first question can be formulated thus:—

(1) *Can the microbes which are found in wound infections live and multiply in the unaltered blood fluids?*

In other words, if I take pyogenic microbes from the wound and implant these into the normal undiluted serum, will they multiply in the serum and give me a satisfactory culture? If we are going to carry out this experiment, and to carry it out repeatedly, and deal with a number

of different bloods; and if we are going to cultivate directly from the pus, we shall evidently have to work in capillary tubes with very minute quantities of pus and very small quantities of undiluted serum. The technique which I have arrived at for fulfilling these requirements is a very simple one. I may call that technique the *wet-wall method*.

METHOD OF MAKING CULTIVATIONS OF PUS IN SERUM, BY THE
WET-WALL METHOD.

The first step in the procedure is to make, by the technique I described in my book on "Technique,"¹ a graduated series of dilutions of pus, using for this purpose any indifferent diluting fluid, and arranging the successive dilutions on a slide in the form of a series of drops (fig. 1, slide 1). I then take in hand a clean capillary pipette fitted with a teat, make a mark upon the stem, and then draw up into it a series of unit volumes of serum, one unit volume of serum for every dilution of the pus. This done, I commence with the highest of these dilutions—that is, the one containing the smallest number of microbes—and draw it up into the stem of the pipette, stopping off exactly at the fiducial mark (fig. 2). I then expel this column, leaving, of course, as I do so, the walls wet with a quantum of microbial suspension—a quantum which would correspond roughly to that which would be left on the outside of a platinum wire of similar stoutness dipped into the suspension. I now expel from my capillary tube my first volume of serum—this in passing over the wet wall will take up its charge of microbes—and I receive this as it issues on to a clean slide. I repeat these manipulations with the next lower dilution of pus and the next unit volume of serum, and so on, until I have implanted my series of volumes of serum with my series of bacterial dilutions. At the end I find myself with a series of drops of serum containing graduated charges of microbes, ranged in order upon a slide (fig. 1, slide 2); and I have in my hand a pipette which is contaminated up to the point indicated by my fiducial mark. I get rid of this contaminated segment of my capillary stem by resecting this just above the fiducial mark, and I now proceed to draw up into my pipette, separating off by bubbles of air, the whole series of drops of serum, beginning with that implanted with the fewest microbes. After sealing up the distal end of the pipette, and closing the butt end by bringing it down upon a bed of plasticine, the pipette is placed in the incubator. After an interval of six to twenty-four hours it is taken out, and the series of unit volumes are now, for

¹ "Technique of the Teat and the Capillary Glass Tube," Constable, London.

purposes of microscopic examination or culture, expelled from the pipette in the order in which they have been taken up—that is, in succession from the lightest to the heaviest implanted. This is effected by cutting through the proximal end of the stem of the pipette and then the distal end, and afterwards luting the latter air-tight into the truncated end of the pipette. The luting is done by rolling a little plasticine into a ball, pressing the capillary stem into this pellet as we hold it between finger and thumb, doubling over the plasticine round the stem; and then invaginating the capillary stem, thus cushioned, into

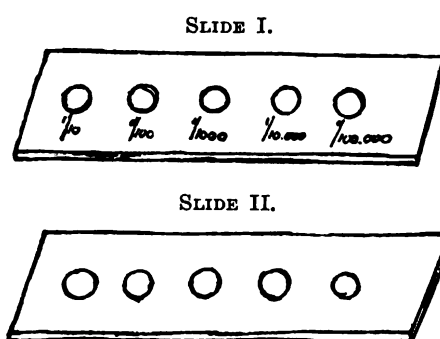


FIG. 1.

Slide I: Graduated dilutions of pus arranged on slide. Slide II: Volumes of serum implanted with the above dilutions of pus.

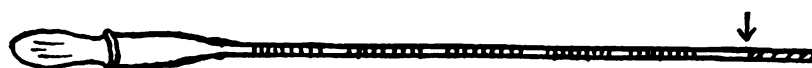


FIG. 2.

Capillary pipette filled with five unit volumes of serum and one unit volume of the last dilution of pus.

the neck of the pipette. We can now with a teat expel our series of unit volumes of serum on to a slide, obtaining them in the serial order which avoids the contamination of the lighter implanted with the heavier implanted.

METHOD OF MAKING ANAEROBIC CULTURES IN CAPILLARY TUBES.

When we desire to make anaerobic serum cultures we do not employ the capillary pipette used for the original implanting operations as a receptacle for our series of serum cultures, but employ instead a separate capillary cultivation tube for each unit volume of serum. The capillary cultivation tubes here in question are made as follows: We take a portion of capillary stem, say some 8 cm. long, draw it out at one end

in the flame of a by-pass into a hair-fine tube, and then break it off, leaving a certain length of throttle attached. We now introduce the other end of the capillary stem into the flame of our Bunsen, and let gravity bend it round into a siphoning curve.

Taking one of these capillary cultivation tubes we bring down the siphon end upon our drop of serum (fig. 3, *a*), and let this run in, afterwards tilting the tube so as to take in, as a rear-guard, a good-sized dividing bubble of air. This done, we fill into our tube, by siphonage, from watch-glasses placed conveniently to hand, first a small quantity of pyrogallic acid, and then, without dividing off, a small quantity of caustic soda (fig. 3, *b* and *c*). We now further incline the tube, and let the contained fluids gravitate down towards the distal end until the serum begins to enter the throttle. At that point we arrest it by sealing the tip, and we finally also seal up the butt end, leave the mixed pyrogallic acid and caustic soda to do their work and absorb all the oxygen from the dividing bubble air (fig. 3, *d*).

Serum cultures made by this method furnish a very striking and uniform result. We obtain in the cultures implanted with the higher dilutions of the pus a pure culture of the streptococcus, and in the cultures more heavily implanted with the pus the streptococcus mixed with a certain number of other microbes: in particular, a few staphylococci and an anaerobic wisp-like diphtheroid bacillus which often is abundant in pus, being found both intracellularly and extracellularly. All the other pyogenic microbes appear to be inhibited in undiluted normal serum, and when they put in an appearance it is only after fairly heavy sowings with pus, and comparatively late.

Out of these facts would come what we shall presently see to be a practically important classification of pyogenic microbes—a classification into, on the one hand, *serophytes*; and, on the other, *serosaprophytes*. The serophytes would be those which, presumably because they find their foodstuffs ready made in the blood fluids, are at home there, and can, in the absence of phagocytes, grow and multiply there without restraint, or practically without restraint.¹ The serosaprophytes would be those which cannot grow and multiply in the blood fluids until a change—which we may, pending nearer investigation, call simply a *degenerative* change—has passed over those fluids.

What holds true of the blood fluids themselves might perhaps

¹ I introduce this qualifying clause because I have on several occasions found the serum of the infected patient to give cultures of streptococcus with a planting of his pus much smaller than that which was required to give a culture in the serum of a normal man.

justifiably be assumed to hold true also of the lymph which pours into the wound. None the less, it will be well specially to investigate this point.

(2) *Does the lymph which pours into the wound provide a favourable nutrient medium for the microbes which have been growing in that wound?*

To pose this question is already to go a long way towards getting an answer to it; for we can, by the aid of a very simple device, obtain the lymph from the walls of the wound. I employ for this purpose

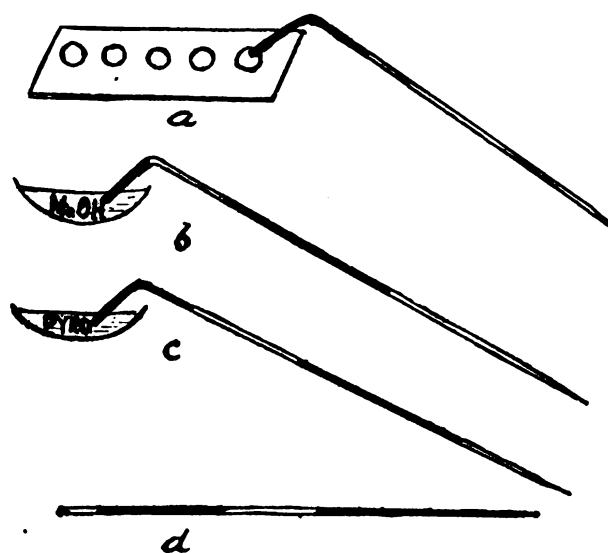


FIG. 3.

Method for making anaerobic cultures in capillary tubes.

what I may perhaps call a *lymph leech*. This consists, as you see, of a small glass tube. It is sealed up at one end, drawn out at the other in the form of a nozzle, and is furnished with a lateral mouth with a raised rim—the whole being very easily made out of a piece of glass tubing, or small test-tube. To the nozzle we fit a piece of fairly thick walled rubber tubing, and this is blocked at the end with a piece of glass rod. When we want to obtain the exudate from a wound we bring down the lateral opening of the lymph leech upon a granulating surface, and then, transfixing the rubber tube with the needle of a hypodermic syringe, we draw out the air and make a negative pressure (fig. 4). It will be appreciated that the lymph leech is in principle

merely a small cupping glass, and that it will, by means of the vacuum we establish in it, hold on tight for whatever period may intervene between dressing and dressing, and furnish an exudate free from all contamination with residual pus left behind in the wound. We can now proceed to compare the fluid in the cavity of the leech with the fluid in the wound outside; or, in connexion with work on antiseptics, to compare the contents of leeches applied respectively to treated and untreated surfaces in the same wound.

And lymph leeches also can be put to other uses. We can introduce for this purpose with a syringe any fluid we may select into the lymph leech, and investigate the effect that fluid exercises upon transudation and emigration. Again, where the nature of a deep-lying infection of a mucous or other surface remains uncertain, the application of a lymph leech might clear up the difficulty. We can also, in the case where we are testing the effect of a vaccine upon a wound, take to our aid the lymph leech. For the effect of a vaccine would probably show itself in the exudate in the cavity of the leech long before it would manifest itself in the outside wound. And, lastly, the application of a lymph leech to the site of inoculation might, perhaps, help to resolve the problem as to whether or no protective substances are then developed.

But it will be realised that for us—at the moment—what is of chief interest is the comparison of the fluid in the cavity of the leech with the fluid in the wound outside.

When, after washing out a heavily infected wound with an antiseptic or simple saline solution, we apply a lymph leech to the walls, and then at the next dressing compare the contents of the lymph leech with the fluid outside, we think at first that there must be some mistake. Outside we have an opaque exudate presenting all the ordinary physical characters of pus containing leucocytes in all stages of degeneration, and swarming with all manner of pyogenic organisms. Inside we have a transparent and slightly blood-stained exudate containing streptococci in practically pure culture, and in addition a few leucocytes, all of which are actively phagocytic. Except in this latter respect, we have, in fact, identically the same result as when we made our thin implantations of pus into normal serum.

The problem now stares us in the face—What is it that makes all this difference between the contents of the lymph leech and the contents of the wound? How has the lymph, which gives in the cavity of the lymph leech only a culture of streptococcus, been converted in the wound outside into a fluid which is ideally favourable to the growth of a great number of different species of micro-organisms?

(3) *What is the cause of that "corruption of the lymph" which converts it into a favourable nutrient medium for sero-saprophytic microbes?*

The proper way to go to work upon a problem of this kind is to keep it unremittingly before the mind; for then some hypothesis will in the end suggest itself. That found, there will invariably come to notice a certain number of accepted data which the hypothesis will fail to explain. These must then be carefully re-examined to see whether they will stand fast and discredit the hypothesis, or whether they also will come in and support it. And, finally, before launching our theory, we ought to think out all its consequences, and then take each of these and verify it.

At any other time one would wish, before promulgating a far-reaching hypothesis, to have verified it at every point. But we have

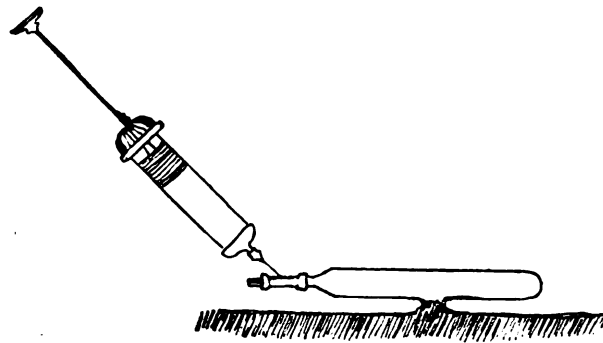


FIG. 4.

Lymph leech.

on our hands in Europe, I suppose, already two or more millions of wound infections, and every other consideration must give way to that of accelerating the researches which we must look to in order to guide us in treating these infections.

I will therefore, before completing its verification, venture to put before you what is, I believe, the solution of the problem of the corruption of the lymph in the wound.

Let me take my departure from those facts which we were considering a moment ago, relating to the culture of pyogenic microbes in the blood fluids. You will remember that I suggested in connexion with serophytic microbes that these must find all the food materials they require ready formed in the blood fluids; and in connexion with

sero-saprophytic microbes, that for these no nutrient substances would be available until the albuminous substances of the blood had undergone some sort of preparatory transformation.

I conceive that that transformation could come only by a digestive process. Now, supposing this to be so, there would come into account a counteracting influence in the serum. For we have there an anti-fermentative, or, as we usually style it, an antitryptic element, which would directly counteract any digestive element which might be struggling to come into operation. And it is clear that microbes which were dependent for their sustenance upon the products of digestive action could establish themselves in the blood fluids only on condition that this antitryptic influence was overborne.

This hypothesis furnishes, as it seems to me, an explanation of certain striking facts relating to the cultivation of microbes on blood fluids, and to bacterial infections. It, as it seems to me, explains the finding that heavy sowings of microbes into serum are effective in giving cultures, while light sowings are not only ineffective, but lethal to the implanted microbes. For it would be only natural that the resistance offered by the antitryptic power of the blood should be overborne by the mass effect of a number of microbes operating upon a restricted or—and this would come into consideration in localised infections—a mechanically isolated quantum of blood. And, again, it would be only natural that the mass effect of a large volume of antitryptic serum would effectively quench the digestive activities of a very few microbes; and also, I think, in accordance with what we know, that microbes deprived of access to foodstuffs should perish of inanition.

Our hypothesis would also make intelligible, in connexion with infections by sero-saprophytic microbes, that frequent and heavy sowings into the blood should be required before a septicæmia can supervene upon a local infection. And again our hypothesis makes it comprehensible that there should be serious difficulty in obtaining hæmo-cultures, even when the microbes have gained a footing in the blood-stream.

And, lastly, our theory brings home to us that, in considering the defence of the body against bacterial infection, we have to take into account not only *active defence* in the form of phagocytes and bacteriotropic substances which make a direct attack upon micro-organisms; but also *passive defence*—that is, protection against infection obtained by preventing microbes converting to their uses the nutrient substances of the blood fluids.

These, however, are general considerations with applications far

beyond the sphere of wound infections, and we must return to the particular problem of the corruption of the lymph in the wound.

When, after treating a wound with antiseptics and leaving it clean, we find it a very few hours afterwards teeming with microbes, we are in presence of something which, in my view, urgently stands in need of explanation; for our findings both in the lymph leech and in serum cultures made with the wet-wall method from pus would seem to teach us that the sowing of microbes left behind cannot be nearly heavy enough to produce the voluminous culture found in the wound, nor yet to account for the rapidity with which the sero-saprophytes have started to grow. And, moreover, upon consideration it will appear that another powerful factor must constantly come into operation in the wound. The factor in question is the tryptic ferment which is elaborated in the phagocytes and which is, when these break up, discharged into the surrounding medium. This tryptic ferment will come into operation under two different conditions. It will come in whenever a residue of pus—for this would contain free trypsin—is left behind in, or afterwards makes its way into, the wound. Trypsin will again come into account whenever, after the washing of the wound, leucocytes once more begin to emigrate, and phagocytose, and break down.

I see in the reduction of the antitryptic power of the lymph thus effected the prime cause of its corruption. Before attempting to obtain confirmation of this from crucial experiments, there was a set of findings to be cleared up. I had found in connexion with pus implantations made into serum that when this was heated to 60° C. for ten minutes one no longer obtained the same differential growth of streptococcus as with unheated serum; but obtained instead mixed cultures of streptococcus with sero-saprophytes, in particular staphylococcus and the wisp-like diphtheroid bacillus already made mention of. It seemed at first sight as if this could not possibly be related with a reduction in the antitryptic power of the serum; for it has, in view of the high quality of Opie's work on this question, been generally accepted from him that the antitryptic power of the serum is unaffected by exposure to heat until a temperature approaching the coagulation point of serum is reached. In reality, however, when this is re-investigated quantitatively,¹ it emerges that the

¹ The quantitative method here employed was in essentials that described in my "Technique of the Teat and the Capillary Glass Tube." It was varied only in the respect that the series of trypsin, serum, and calcified milk mixtures, which are employed in that method, were taken up, not into a many-stemmed pipette, but into a long, unmounted, wide-bored capillary stem, which had, for the purpose of convenient filling in, been bent round at one end in the flame of a Bunsen into a siphoning curve.

antitryptic power of the serum is reduced by one-third to one-half when we subject the serum to a temperature of 60° C. for ten minutes.

That difficulty having been removed out of the way of our hypothesis, we may proceed to take cognisance of the results of the crucial test experiments—experiments in which graduated additions of trypsin are made to serum as a preliminary to the implantation of sero-saprophytic microbes. The outcome of these experiments can be summed up in a sentence. When we add trypsin in quantities sufficient to reduce appreciably the antitryptic power, but insufficient to give us any free trypsin, the serum is converted into an eminently favourable nutrient medium for sero-saprophytic microbes.

Our hypothesis is thus very strikingly confirmed. It will be necessary hereafter to follow it into all its consequences. For the present it will, however, suffice if we ponder on the fact that the antitryptic power of the blood would appear to be increased in every case of severe wound infection. We have, perhaps, here a defensive reaction of the organism directed against a possible invasion of the blood by sero-saprophytes. And we may perhaps look in this direction for an explanation of the non-specific benefit which has been observed to follow upon the inoculation of bacterial vaccines. It is clearly not impossible that the inoculation of a bacterial vaccine might contribute both to active and passive defence—to the active defence of the body against a particular microbe by calling forth a production of specific bacteriotropic substances, and to the general passive defence of the organism by calling forth a production of antitrypsin. And these two forms of immunising response would not necessarily be linked together. The production of specific bacteriotropic substances would no doubt depend upon the quantum of bacterial antigen incorporated; while the production of antitrypsin might perhaps depend upon the breaking down of phagocytes and the liberation of their trypsin.

WHAT ARE THE FACTORS WHICH INFLUENCE THE EMIGRATION OF WHITE BLOOD CORPUSCLES INTO THE WOUND?

I pass now to consider yet another subject-matter—the emigration of leucocytes into the wound. I need not labour the point that this is a factor which may determine the issue of an infection; nor need I point out that it behoves us to acquire a control over the movement of leucocytes, and then to turn this to account, as the case may be, by activating or restraining emigration.

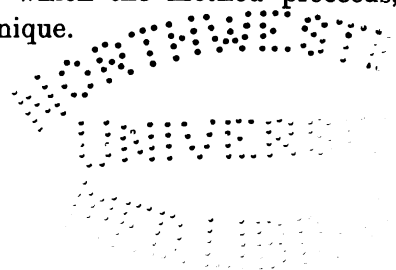
Broad foundations for our work have, as you know, already been laid by the brilliant researches of Metchnikoff. But it was with Metchnikoff always a question of experiments *in vivo*—that is, of experiments carried out under conditions which cannot be sufficiently simplified to give quite unambiguous answers. And we require for the elucidation of our problems and for all detail work connected therewith, absolutely simple crucial experiments, such as can only be made *in vitro*.

The line of thought which I have followed in elaborating a laboratory method for the study of the phenomena of emigration is the following: The leucocytes in extravascular blood are known to retain their emigrating power. A difficulty, however, when we are working with extravascular blood, will beset our observations, inasmuch as we have not at disposal such a containing membrane as the capillary wall. We are, in fact, in dealing with extravascular blood, confronted with a situation similar to that which would be encountered in observations *in vivo* if the capillary walls were to give way and we had to make observations on emigration in a portion of tissue which was flooded out by red corpuscles.

I had hoped at first to be able to circumvent this difficulty by taking advantage of the fact that when clotting occurs the red blood corpuscles become enclosed in a meshwork of fibrin, after the manner of fish in a net. But all my efforts to make the fibrin meshwork take over the office of a containing membrane were defeated. No matter how tenderly the clot was treated the meshes of the net broke, and hæmorrhage from the clot interfered with the observations.

A second difficulty also presented itself. When in the living body white corpuscles emigrate into connective tissue it is possible to register their travel because they move forward through a retaining meshwork. It would not be possible to do so if they merely passed out into fluid, to be afterwards carried hither and thither by every chance convection current. Exactly the same applies to the extravascular blood. The emigrating leucocyte must be provided with some sort of scantling to move forward upon, and come to rest in.

After a time I alighted on a method which satisfies the two aforementioned experimental requirements, and which, as I think, provides all that is required for a quantitative estimation of emigration. Let me first tell you the general lines upon which the method proceeds, and then set out the details of the technique.



PRINCIPLE OF THE METHOD EMPLOYED FOR MAKING OBSERVATIONS
ON EMIGRATION.

The principle of the method is as follows: We fill in a capillary tube with blood from a prick in the finger, immediately place the capillary tube in the centrifuge, and centrifugalise until we have carried down all the corpuscles. We have now in the upper half of the tube a plasma which has been completely freed from all formed elements; and in the lower half of the tube, at the bottom, the red blood corpuscles intermixed with a certain number of polynuclear white blood corpuscles; and above this a layer made up predominantly of white blood corpuscles—these last in the front ranks consisting almost exclusively of small and large mononuclears. The blood now clots. And this gives in the upper half of the tube a clot consisting of fibrin without any formed elements—let us call this the *white clot*—and in the lower half of the tube a clot—let us call this the *red clot*—which holds all the corpuscles in its meshes. When a chemotactic stimulus now comes into application from above, the white blood corpuscles will come out from the red clot and will travel upwards through the meshes of the white clot—afterwards maintaining their positions so as to allow of our making measurements and enumerations. We will now pass to the details of the technique.

DETAILS RELATING TO APPARATUS AND PROCEDURE.

With regard to apparatus, all that is required is a supply of flat capillary tubes. By using flattened capillary tubes we obtain a thin clot, which can more easily be examined under the microscope.

We make these tubes—and they may conveniently be called emigration or chemotactic tubes—either out of a small test-tube, or out of a length of fairly wide-bore glass tubing. We heat this in the blow-pipe flame until it becomes very plastic; then making a sharp outward turn with the right wrist, bend the tube round through a right angle, giving it the proper flattened conformation: and then draw out into a long flat capillary stem (fig. 5, A). We cut this through at the point where it begins to lose its flattened conformation: and so leave attached to the next segment a sufficient length of tube to take hold of when we go to work upon it. When a sufficient number of lengths of flattened stem have been provided, we cut these up into segments of about 8 cm. in length; arrange them side by side after the

manner of a palisade ; and then with our glass writing pencil rule two lines across the face of our tubes. The first of these lines ought to fall somewhere in the middle. It is to serve as a fiducial mark for filling in the blood from the finger. The second line, which may conveniently fall at a point to about $\frac{1}{2}$ or $\frac{3}{4}$ cm. to the end of the tube, is to serve as a fiducial mark in filling in the chemical agent whose effect we are to study.

The tube may now be used just as it is ; or we may before using it furnish it with a siphon curve by bending it round at the level of our second fiducial mark. We do this by taking up each tube separately, holding it horizontally, and then passing it rapidly to and fro through a small by-pass flame. The action of gravity will then, as soon as the glass softens, bend round the tube for us (fig. 5, B).

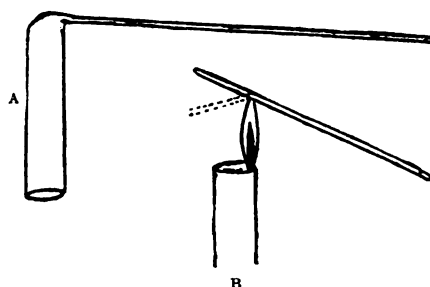


FIG. 5.

Method of making emigration tubes. A, method of giving the flattened conformation to the capillary stem ; B, method of bending the tube round to form an elbow.

METHOD OF USING THE EMIGRATION TUBES, AND BRINGING THE CHEMOTACTIC AGENT INTO APPLICATION.

The emigration tube is first filled in up to the midway point with blood drawn from a puncture in the finger. In the case where we employ a bent tube this is done by letting the blood flow in through the siphon curve.

The chemotactic agent can now be brought into application in three different ways.

(1) *It may simply be superimposed upon the clotted blood.* This is done by using a *filiform pipette*, made by heating the stem of an ordinary capillary pipette in a small by-pass flame and drawing out, while with a rubber teat we apply internal pressure to prevent the walls of the hair-fine tube collapsing. Considered as a method for bringing

a chemotactic agent into immediate application, this method falls short in the respect that the chemical has to diffuse down through the whole white clot before it comes into operation. In view of this, the method does not lend itself to the institution of any comparisons between normal blood and anæmic blood. For the experimental conditions are not comparable when our chemotactic agent has, in the one case, to diffuse through a length corresponding to half the column of blood; and, in the other case, through a length which may amount to nine-tenths of that column.

(2) The *second* method of bringing the chemotactic agent into application is that of *superimposing the chemotactic agent upon the unclotted blood* (fig. 6, B and C). Having filled in a curved emigration tube up to mid-point mark with blood, we tilt the tube so as to take in a dividing bubble of air; then fill it up as far as the elbow with the chemotactic agent; and then, after sealing up the distal end of the tube, proceed to centrifuge. This method is applicable, in particular, when we are working with bacterial suspensions; for while the watery suspending fluid remains, by reason of its lighter specific gravity, on the top, the microbes are, by virtue of their higher specific gravity, carried down into the plasma to be embedded in the white clot all the way down to the leucocytic layer.

(3) The *third* method is the method of *traversing* (fig. 6, D and E). In employing this we may use either a straight or a bent emigration tube. We fill in, first, with our column of blood; follow on with the dividing bubble of air; and then, making use of the forerunning column of blood to serve as a brake, fill in up to the fiducial point with the chemotactic agent.¹ Finally, we seal up that end of the tube which has served as an inlet, and place the tube in the centrifuge.

Our chemotactic agent will now traverse the column of blood and take up a position at the top, leaving behind it in the plasma traces of whatever chemical it holds in solution. That this is what actually happens can be shown by employing, in place of a colourless chemotactic agent, a solution of methylene blue, or simple water. This last, when it follows on after a column of blood and dissolves the red blood corpuscles which this leaves in its wake, will come out at the top coloured with hæmoglobin.

The traversing procedure will be applicable in the case where we

¹ In practice the procedure of traversing is to be carried out exactly as here described. In the illustration fig. 6, D, in order to convey the idea of traversing to the eye, the chemotactic agent precedes instead of following the column of blood.

want to bring into operation chemical agents, and especially applicable where we want to bring such agents into instant application.

When we are working with a series of tubes, as will practically always be the case, it will be well to place each, as soon as it is filled, into iced water or ordinary cold water. The buckets of the centrifuge will serve as convenient receptacles. After centrifugalisation the emigration tubes are placed in the incubator, according to circumstances, for from three to twelve hours or more. While in the incubator the tubes may conveniently be placed upright—that is, with the white clot

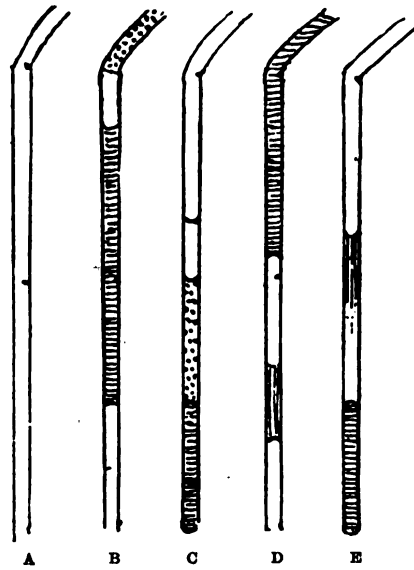


FIG. 6.

Method of adding chemotactic fluid to blood. A, curved emigration tube, empty. B, tube filled in with a column of blood, a dividing air bubble, and then, as far as the elbow, with a bacterial suspension. C, tube after centrifugalisation; the bottom of the tube is occupied by the red clot, and the intermediate portion by the white clot and implanted bacteria; at the top is the watery menstruum in which the bacteria were suspended. D, tube filled in for traversing; in the lower portion of the capillary stem is the chemotactic agent; in the upper part the column of blood. E, tube after centrifugalisation; the bottom of the tube is occupied by the red clot, and the intermediate portion by the white clot, containing traces of the chemotactic agent; at the top the watery menstruum containing the bulk of this agent.

uppermost—in plasticine. They may also be laid on their sides, tilted a little upwards. The inverted position is to be avoided; for when we invert our tubes we bring down into the white clot a shower of red corpuscles which block emigration and also obscure the view.

METHOD OF BRINGING THE EMIGRATION EFFECT INTO VIEW AND
TAKING COGNISANCE OF THE RESULTS.

When all we want is to get a general idea of what is going on in the tubes, we can obtain this by introducing the unopened tube into an observation cell. A very simple form of observation cell can be made by placing small pellets of plasticine upon each of the four corners of a microscopic slide, covering in with another slide—allowing a little overlap—and then filling into the interspace either water or some more highly refractive fluid, such as glycerine or oil. By observing in such a cell we bring in view not only the leucocytes which have emigrated into the white clot, but also those which have escaped into the interspace which may develop between the clot and the walls of the capillary tube.¹

For all purposes of quantitative observations we blow out² our clots into water; wash carefully so as to remove leucocytes adhering to their exterior; and then mount them on a slide. We then, after cutting off the surplusage of red clot, fix by drying, and stain for a few minutes in Kühne's methylene blue freely diluted. The specimens are examined first, dry or in water, under a low-power objective, and afterwards in oil under an immersion.

¹ Attention may, in connexion with this, be called to facts which have an importance and a useful application in medicine, which happen to have also an importance and a useful application in connexion with the emigration method here under consideration. The facts I have in view are as follows: The blood of a person suffering from chilblains, or any other manifestation of a lowered blood coagulability, will, on centrifugalisation, generally fail to give the kind of white clot we require for our emigration experiments—that is, one that is firm and non-contractile. This condition of things can be remedied by the exhibition of calcium salts, or, as the case may be, by appropriate additions of these salts made to the blood when filling our capillary tubes. I would in connexion with this emphasise that we have here brought into clear view what is really the material factor in connexion with the effect exerted by calcium salts in the blood. And I may perhaps be permitted to point out, in connexion with my own work on calcium as an agent for promoting and citric acid as an agent for diminishing coagulability (*Brit. Med. Journ.*, July 29, 1893, and July, 1894, *Lancet*, January 18, 1896, and January 30, 1897), that while what I have said with reference to the clinical effects exerted has been, I believe, universally confirmed and accepted, what I have said with respect to the effects of the coagulability of blood *in vitro* has been traversed. This stands, as I believe, in relation to the fact that the laboratory workers who have repeated my work have employed methods which took into account rapidity, but left out of account firmness, of coagulation. It will now, I hope, by adopting the method of centrifugalising, and watching the effect exerted upon plasma which has been disembarrassed of corpuscles, be possible to arrive at unanimity in these matters. Finally, I may direct attention to the fact that what comes into view in centrifuged, is seen also in uncentrifuged blood. When we make to this appropriate additions of calcium salts we obtain, as I long ago pointed out, a firmer and non-contractile clot.

² This is done by the same technique as described in connexion with the *wet-wall method* (see p. 45).

GENERAL CONSIDERATIONS RELATING TO THE MOVEMENTS OF
WHITE BLOOD CORPUSCLES.

Before passing to consider the question how it will be possible to arrive at a quantitative expression for the leucocytic movements induced by a chemotactic agent, it will be well to take a general survey of the things that present themselves to view in every emigration tube.

We have to take into account in connexion with white blood corpuscles two kinds of movements. There is, on the one hand, a process of wandering at large; and, on the other hand, a directed movement—that is, a movement along some particular axis—undertaken under the direction of a chemical stimulus. We may call the first kind of movement an *eleutherotropic* movement. The second is usually known as a *chemotactic*—I prefer to call it a *chemotropic*—movement. It is, of course, the latter, not the former, kind of movement which we are here primarily concerned to study. For clearly it is the chemotactically directed movements of the leucocytes towards the bacterial focus, and not their wanderings at large, which come into consideration in any conflict against infection.

None the less, a word may be said about *eleutherotropic movements*. One finds in every specimen of blood which has been simply centrifuged and placed in an incubator, always a certain wandering at large of the leucocytes—in particular, the mononuclear white blood corpuscles, which have been tightly packed together by the action of the centrifuge, and are ranged at the top of the red clot, leave their ranks and wander out into the adjacent regions of the white clot. The polynuclear leucocytes also are affected by eleutherotropic wandering. They come out from the hinder ranks of the leucocytic layer, and also from deeper down in the red clot, and wander free. In our observations we leave out of account all those leucocytes that have wandered outside the white clot. We regard them as having run to waste.

A further point which claims attention in connexion with emigration is the *nature of the emigrating leucocytes*.

Ordinary *eleutherotropic emigration* is predominantly mononuclear, this being probably accounted for by the fact that the white blood corpuscles which are ranged up along the line which divides the red from the white clot are almost all mononuclear. In *chemotactic emigration* we have either a differential emigration of polynuclear white corpuscles, or a mixed mononuclear and polynuclear emigration in which either the one or the other of these varieties of leucocytes may

predominate. In all such mixed emigrations the polynuclear, presumably because they are faster of foot, overtake the mononuclear leucocytes and pass on and occupy the more distal portion of the field of emigration.

METHOD OF ARRIVING AT A QUANTITATIVE EXPRESSION RESPECTIVELY FOR "COMPACT" AND "DISPERSED" EMIGRATION.

A quantitative expression for the emigration movement which takes place in a capillary tube can be arrived at in two ways. When we are dealing with a *compact* emigration (fig. 7, *B*)—that is, where the field

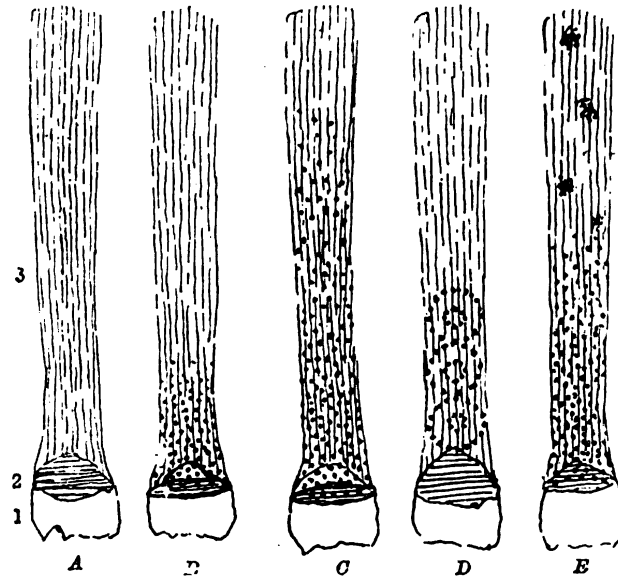


FIG. 7.

Clots from emigration tubes blown out and mounted. *A*, no emigration; *B*, compact emigration; *C*, dispersed emigration; *D*, method of dividing up the clot for enumeration; *E*, bacterial colonies coming up only in portion of clot which has not been reached by the emigrating leucocytes.

of emigration is quite closely packed with leucocytes—we have simply to measure the area of that field, or (and this answers the purpose perfectly well) the length of clot occupied by the emigration; and we may conveniently measure it in terms of microscopic fields. In such measurements we take off from the base-line furnished by the distal border of the cone of leucocytes which occupies the base of the white clot. This represents the original leucocytic layer converted, by the

contraction of the fibrin, into a cap covering the upper end of the red clot.

When, as will happen when a longer time has been allowed for the wandering out and dispersion of the leucocytes, we have before us a *dispersed emigration* (fig. 7, C), it will no longer suffice simply to measure the distance the leucocytes have travelled into the clot. It now becomes necessary to enumerate the emigrating cells. Employing first a low-power lens, we bring the upper edge of the cap of leucocytes to the extreme edge of our field of view. Then turning to our oil immersion, we bring this down upon the central portion of the low-power field, and make a count of all the leucocytes which lie within its purview—when necessary helping ourselves out in our count by introducing into the diaphragm of our eyepiece a cover-glass divided up by light rulings, made with a glass writing pencil. Having obtained in this way a value for the emigration in an arbitrarily selected portion of the first microscopic field, we go back to our low-power objective and move our specimen along until the objects on the extreme distal margin have been carried right across the field, and now lie just out of view on the other side. The further steps in the procedure are now simple repetition.

What are obtained by this method of enumeration are, of course, only arbitrary figures, and it will be realised that the comparative values arrived at will be strictly accurate only where we are employing clots of similar thickness.

SURVEY OF THE DATA WHICH THE METHOD HAS ALREADY GIVEN.

We may now pass on to consider some of the data that the method has already given. White blood corpuscles will move out in any direction towards a chemotactic substance. They will, however, emigrate more freely downwards than horizontally, and more freely horizontally than upwards.

Anaerobic conditions are more favourable to emigration than aerobic conditions. Leucocytes will travel out farther in the direction of a chemotactic substance when we absorb the oxygen in the tube with caustic alkali and pyrogalllic acid and seal, than when we leave the end of the tube open to the air.

Leucocytes emigrate more abundantly in tubes standing at a temperature of 40° C. than in tubes standing at 37° C. They do not emigrate at temperatures of 10° to 15° C.—the temperature which

prevailed on our laboratory bench. After exposure to temperatures of 0° C. for periods of half to one hour they emigrate apparently as freely as before.

Emigration apparently goes on unaffected in the presence of ether. It is abolished or suspended in an atmosphere of chloroform.

Physiological salt solution—brought into application either by traversing, or by superimposing it upon the clotted or unclotted blood—induces a very vigorous emigration of polynuclear white blood corpuscles. Weaker salt solutions induce a less vigorous emigration, and

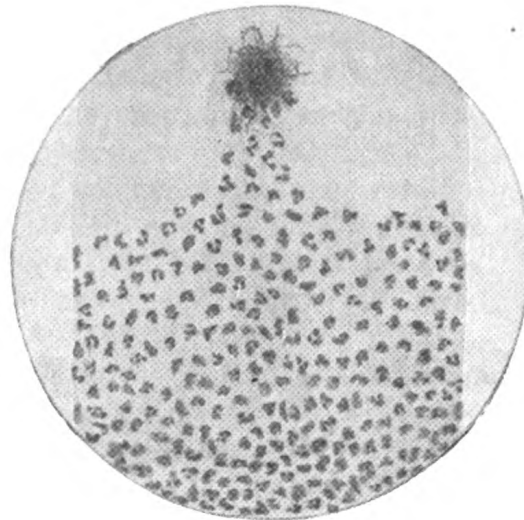


FIG. 8.

Extreme limit of emigration, showing phagocytes attacking streptococcus colony.

water again a less vigorous. Strong salt solutions—for example, 5 per cent. salt solutions—suppress emigration.

It will be appreciated in connexion with these and all findings obtained by this method that they do not tell us the effect of reagents acting in the specified dilutions directly upon leucocytes, but only the effect of these reagents operating from a distance. In other words, our experiments do not furnish information as to what would be the effect of bringing the chemical agents in the specified concentrations directly in relation with the capillary wall.

Bacterial suspensions which have been sterilised by heating evoke, according to the dilution in which they come into application, quite

different effects. The general rule applying to bacterial suspensions would seem to be as follows: Concentrated suspensions usually completely suppress emigration. Ten or hundred fold diluted, they evoke vigorous emigration. When we employ progressively higher dilutions we arrive in time at a point when the effect is exactly the same as that of the particular fluid which we are employing as a diluent.

Normal bloods tested with one and the same series of bacterial suspensions exhibit quite different degrees of chemotropic sensibility. Chemotropic sensibility, not alone to bacterial suspensions but also to

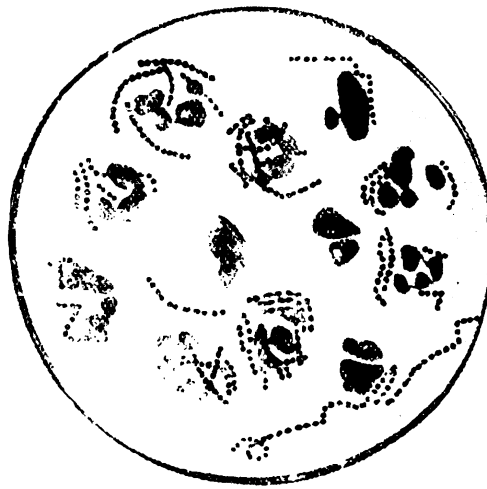


FIG. 9.

Phagocytosis of streptococci towards extreme limit of emigration.

physiological salt solution, is very strikingly modified in the case of patients suffering from bacterial infections. This also applies to persons inoculated with streptococcic vaccines. In five out of six men, inoculated with such a vaccine and examined both before and afterwards, the emigrating response to streptococcus was very strikingly increased subsequently to inoculation. In the case of one man it was diminished.

Results somewhat similar to those obtained with dead cultures are obtained with suspensions of living microbes (streptococci and gas-phlegmon bacilli), but here the prolonging of the incubation period may strikingly alter the situation.

What generally happens may be summed up as follows: When, by superimposing and centrifuging, a heavy sowing of microbes has been implanted into the unclotted blood, the colonies come up all along the white clot, and emigration into this is completely checked. Where only a moderate implantation of microbes has been made we have in different parts of the clot different results: Bacterial colonies develop freely in the distal area of the clot which is not invaded by emigration. In the intermediate region—that is, in the region where the microbes can grow out before the leucocytes arrive—one sees with the low-power objective areas specially crowded with leucocytes—these are in point of fact colonies which are being broken up and dispersed by invading leucocytes (fig. 8)—and with the oil immersion one sees that every leucocyte in these crowded masses is taking up microbes, and that there is also in all this region of the clot plentiful phagocytosis of scattered microbes (fig. 9). In the base of the white clot—that is, in the area where emigration has occurred earliest and most vigorously—one finds absolutely no trace of microbial growth.

The appearances which have just been described correspond, of course, to a period of conflict. This conflict is generally at its most interesting phase in tubes which have been incubated from three to six hours. When we come later—for instance, after twelve or more hours—the conflict is over. We then find either that the white corpuscles are masters of the field and the microbes have disappeared, or else that the microbes have invaded the whole clot, and that this crumbles away as soon as it is blown out into water. There can be little doubt that the crumbling away of the clot, and the overrunning of the blood with microbes, are due to the digestion of the fibrin, and to the corruption of the blood fluids by trypsin set free from the disintegrated leucocytes.

Experiments such as these just outlined, in which living microbes are brought into application on blood, provide, in point of fact, a valuable test method. They tell us the resultant of the *chemotropic sensibility* of the leucocytes, the *opsonic power* of the blood fluids, the *digestive capacity* of those phagocytes which come into action, and of the *antitryptic* and, where such comes into account, the *bactericidal* power of the blood fluids. We are, in fact, furnished with something like a complete evaluation of the antibacterial powers of the blood.¹

¹ It will be observed in connexion with tests thus conducted with centrifuged blood that, if we leave out of regard the centrifugalisation, they are in all essentials the same as the *phagocyto-bactericidal* tests with freshly drawn uncentrifuged blood which I have already described ("Vaccines and Drugs in Pneumonia," Constable, 1914).

There is still one element left out of account. The method here in question does not tell us anything as to whether or no there are bacterial poisons in solution in the blood fluids of the infected man. But this is a question which can be separately investigated. I have tried to find the answer by traversing normal bloods with serums derived from patients suffering from septicæmic infections. And I have by this procedure obtained in a series of cases what appeared to be a definitely chemotropic emigration.

All that has been recounted above is, of course, only a very small beginning. But I think we may be confident that the method for the study of emigration which has here been proposed will resolve important problems in connexion with infection generally, and also—and this is what specially concerns us here—some of the problems in connexion with wound infections which are now urgently pressing for a solution.

In the matter of general problems of infection it would, I think, be possible, by implanting bacteria into blood in combination with chemical agents which would respectively promote and hinder emigration, to resolve for each particular bacterial infection the question as to whether it is the leucocytes or the blood fluids which come most into consideration as destructive agencies. That problem once resolved, we should know whether we ought, in the infection in question, to direct our chief efforts to increasing the efficacy of the blood fluids or to modifying the chemotropic sensibility of the leucocytes and encouraging emigration.

Again it looks as if it might be possible by very simple experiments to resolve the problem as to why in gonorrhœa, and also in other surface infections, the purulent discharge is suddenly arrested when the microbes succeed in invading the blood-stream, or establishing themselves in an articulation or elsewhere in the interior of the body. It would seem possible (for something of this kind would seem to occur in septicæmias supervening on wound infections) that we may be dealing here with a paralysis of the emigrating powers of the leucocytes. Or, again, it is possible that in these cases emigration may be simply suspended by a redistribution of the chemotactic forces. In other words, the cessation of the external discharge may simply mean that there is now in the blood a bacterial poison; and that this chemotactic element, acting upon the leucocytes as a *vis a tergo*, counterbalances the *vis a fronte* of the chemotactic substances produced by the bacteria on the external surfaces.

In connexion with the particular problems of wound infections we may hope at no distant date to come into possession of information

which will enable us to activate or restrain, according as the one or the other may approve itself the better policy, the emigration of leucocytes into the wound. And we may hope also to determine in connexion with every antiseptic or other solution which is brought into application in a wound, whether it promotes or hinders emigration.

Finally, let me point out—for everything that concerns bacterial vaccines concerns the treatment of wound infections—that experiments on emigration will almost certainly resolve a number of important outstanding questions in connexion with vaccines. They ought very easily to resolve the question as to what is the best excipient for a vaccine—whether a menstruum which would restrain emigration, or one like physiological salt solution which would call forth a vigorous emigrating response at the point of injection. And lastly—and this would be one of the most important applications of observations on emigration—we ought to be able to determine what is, in the case of each bacterial vaccine, the dose which will induce the earliest possible and the most effective determination of phagocytes to the focus or foci of infection.

We may, with such new knowledge as we have acquired from the experimental methods I have described, now revert to the consideration of those three ways of combating wound infections enumerated earlier in this discourse. It will be remembered that these were: *Treatment by antiseptics, treatment by physiological methods, and vaccine therapy.* We will take them one by one.

TREATMENT BY ANTISEPTICS.

If we adopted the Socratic method, and were to inquire of the first man we found engaged in washing out a wound what were the grounds for his confidence in the utility of the procedure, he would probably make some such answer as the following: "I know that the antiseptics which I am bringing into application are agents which directly kill and inhibit the growth of microbes. There is no other agency known which would be competent to do the bactericidal work that these antiseptics do in the wound. And, again, it is everybody's knowledge that Lister, by introducing his antiseptic treatment, extirpated those septic infections of wounds which before the advent of his method devastated the surgical wards of every hospital."

And if we were to push our question further, and ask of the surgeon to what particular end and object his procedures were directed—whether it was the sterilisation of the wound; or the killing off of

a large proportion of the microbes or the imposition of a check upon the survivors; and if we were further to ask, whether the particular antiseptic in the particular strength in which he was employing it could be relied upon to achieve the end in view; we should probably be told that, supposing that the antiseptic did not completely sterilise the wound, it would inevitably kill a large number of microbes; and it would probably also inhibit the growth of any survivors. And, inasmuch as one or other of these objects would be sure to be achieved, there could be no question but that advantage would accrue to the patient.

We should, in short, get an answer which proceeded upon at least one erroneous premiss, and which betrayed loose and inconsequent thinking, and a reluctance to come to close quarters with the question. But though the reasonings of the larger part of humanity are neither better nor worse than this, it is not for that less necessary to take them into very serious account, and to do our best to correct them when they mislead.

Let us begin, since Lister is the fount and origin of all antiseptic treatment, with what relates to his work. Lister's name is associated with two discoveries. The *first* of these is the discovery that we can, by an *anticipative prophylactic application*, hold off microbes from surgical wounds, and so avoid wound infections. The *second* is that in cases of compound fracture where the wound is already infected we can still, by what I may perhaps call a *retrospective prophylactic application of antiseptics*, stave off the wound infection. The first of these is a discovery of absolutely universal application, and it will carry the name of Lister down to remotest posterity. The second discovery has reference only to a particular kind of traumatic wound, and shows that prophylactic applications of antiseptics can be usefully employed also in connexion with some wounds which are already infected.

It is clear that neither of these discoveries finds any direct application either in connexion with prophylaxis or the treatment of the infections which occur in projectile wounds.

What it is necessary to say on the possibility of preventing septic infection by sterilising projectile wounds can be said in a very few words. The principle that microbes can be held off from wounds by an antecedent employment of antiseptics has no application to projectile wounds, for these are infected before they are seen by the surgeon. Nor, again, is the Listerian discovery that prophylactic applications of antiseptics in the ordinary compound fractures of civil life can

stave off wound infection related to conditions such as obtain in projectile wounds. Retrospective, or, as we may also call them, *ex post facto* prophylactic applications of antiseptics will give good results only when the microbes are accessible. In the case of the ordinary compound fracture of civil life this is the case. For here the microbes lie exposed on the external surface of the bone which has been thrust through the skin. The contrary holds for projectile wounds. Here the microbes are inaccessible. They have been carried down deep into the tissues, and lie on the inner face of a torn and ragged track; and that track is blocked by blood-clot and hernia of muscle.

It is clear that the utmost that prophylactic applications of an antiseptic could under such conditions achieve would be an incomplete sterilisation. And an incomplete sterilisation would leave us with a wound infection, and in a few days with as bad an infection as before. Coming now to actually subsisting wound infections, we see that exactly the same thing would apply. We are not entitled to infer from the fact that the method of Lister is within its limitations an effective method of prophylaxis that it is also an effective method of treatment. That is clearly a question which must be determined as an independent issue.

When we approach the question in this way we see that the first point which has to be determined is: What particular concentration of each particular antiseptic will, when applied to the wound, exert there a bactericidal action on the microbes? In connexion with this we must beware of the fallacy of taking the figures for an antiseptic acting on microbes in watery suspension and seeing in these an all-round formula of efficacy for that particular antiseptic.

A formula of efficacy of this kind might, of course, find a useful application where the sterilisation of skin surfaces and instruments was concerned. For here the antiseptic comes into operation on exposed microbes in full strength. In practically every other case the conditions would be entirely different. The antiseptic would have to come into operation in a medium which quenches its antibacterial action.

I have recently, in dealing with internal medication by antiseptics in pneumonia, brought forward¹ an array of experiments which show that the quenching of the anti-bacterial power of antiseptics by the medium in which these come into application, is the essentially important factor to be considered in connexion with their therapeutic use. In particular

¹ "Drugs and Vaccines in Pneumonia," Constable, 1914.

I have shown in connexion with drugs like creosote and guaiacol, that doses which would almost certainly be lethal would have to be administered before these could come into operation in blood.

The same sort of thing holds true of pus. But here the situation will be different in two respects. It will be different in respect that, as compared with serum, pus exerts a greater quenching effect upon antiseptics. It is, if I may put it so, more *antisepticotropic*. This will prevent us taking the antisepticotropic values for the serum and applying them to the pus in the wound. Again, the conditions under which an antiseptic comes into application in a wound will contrast with those which come into application in internal medication. In connexion with internal medication we have to take into consideration the quenching influence which would be exerted by the totality of blood. In applying antiseptics to the wound it lies with us to make the conditions much more favourable to the antiseptic. We can, if it is a question of washing out a wound with antiseptics, make the relation of antiseptics to pus anything that we please. And where it is a question of leaving an antiseptic behind in the wound for the purpose of inhibiting growth, we can also, within limits, lay down our own conditions, and make provisions which will prevent the conditions becoming too unfavourable to the antiseptic.

If there are, in the published literature on antiseptics, any papers dealing with the investigation of the efficacy of antiseptics from this point of view, they have escaped my observation. I have accordingly in conjunction with my fellow-workers, Dr. W. Parry-Morgan and Dr. A. Fleming, set to work to supply the missing data. To find out what concentrations of antiseptic ought to be brought into operation in washing out a wound we took nine volumes of antiseptic to one of pus. To determine what inhibitory effect would be exerted by an antiseptic left behind in a wound we took one portion of the antiseptic to—as the case might be—two or four volumes of pus. It will be seen that by this plan of operation we conduct our experiments directly on the microbes and pus furnished by the wound; in other words, instead of dealing with any abstract question, we deal with the concrete question which presents itself in the particular wound infection which happens to lie before us.

The general results obtained in this investigation will be separately set forth. At the moment it will suffice to call attention to the fact that when employing nine volumes of the antiseptic solution to one of pus from the infected wound, and leaving the antiseptic in application for ten

minutes, a strength of 1 in 40 of carbolic acid, and strengths of 1 in 400 of biniodide of mercury, and 1 in 500 of tincture of iodine all failed to sterilise. Again, in experiments on inhibition, one volume of a 1 in 30 dilution of lysol, and 1 in 400 of tincture of iodine, and 1 in 200 solution of biniodide of mercury did not avail to prevent bacterial growth in four volumes of pus. But I must not delay over the question as to what will with a particular antiseptic be the particular concentration required for the attainment of a particular antibacterial effect. Let us revert to our task of trying to bring the whole question of the employment of antiseptics in wounds into some sort of proper perspective. It will help us to do this if we consider the following questions:—

(1) *Is there any reasonable prospect of sterilising the wound by an application of antiseptics?*

So far as the pus which is brought into intimate contact with the antiseptic is concerned, it would probably be possible to sterilise this by methods which will elsewhere be explained. But we have in the wound not only pus which can be reached by our antiseptic washings but also pus which is locked up out of reach in blind alleys and pockets. And, again, we have in the infected wound not only a microbic infection of discharges, but also a microbic infection of the granulation tissue. And assuredly the really formidable difficulty in connexion with the sterilisation of the wound is that of getting sufficient penetrating power to deal with these sheltered microbes.

Now the ordinary antiseptics which we employ in wounds have as good as no penetrative power, and, though it is possible to undertake comparative experiments, and as an interesting academic exercise to determine for a series of antiseptics how far their antibacterial influence may extend in agar or any other artificial medium, academic exercises like this ought not to divert our attention from the fact that there is not, among all the competing antiseptics, one which can penetrate into and sterilise the walls of an infected wound. In fact, if it were ever to come about that an antiseptic sterilised heavily infected wounds, that would be a matter to announce in all the evening and morning newspapers. Nor is it matter for surprise that antiseptics should not be able to penetrate into granulation tissue. Let us call to mind the fact that this is composed of continuous layers of cells; that the cell wall is a quasi-impenetrable membrane; further, that we have in the granulation tissue a well-developed system of capillaries, capable of absorbing and carrying away any antiseptic that might penetrate: and, lastly,

that we have also in the granulation tissue an outflowing lymph current. Having realised the inefficacy of antiseptics for the purpose of sterilising an infected wound, let us now pass to the next question. It may be formulated thus :—

(2) Is there, in point of fact, any ground for the confident belief that a reduction in the number of microbes, such as would be obtained by washing out the wound with antiseptics, must carry advantage to the patient ?

We have realised that it is a firmly established conviction that every procedure which leaves behind in the wound fewer microbes would, like a smaller sowing of seed, sensibly reduce the ultimate crop, and so sensibly advantage the patient. The bacteriologist does not see that this is a matter of course. He thinks not only of the sowing, but of the soil. He reflects that when we are dealing with a microbe which reproduces itself rapidly on a particular medium—let us say the typhoid bacillus in peptone broth—the lightness or heaviness of the sowing would after the lapse of a comparatively short time hardly come into account. Again, in the case of a microbe which multiplied itself very slowly in a particular medium the sowing would, unless the incubation period were indefinitely extended, make very little difference to the result. Finally, where a microbe grows very slowly on a particular medium, but very rapidly as soon as this undergoes transformation, the population of microbes found in the culture would clearly depend less on the number implanted than on the time taken to convert the nutrient substratum from a bad into a good cultivation medium. It is, in the light of what has gone before, quite easy to see the application of this to the wound. Whether few or many serophytic microbes are left behind in the wound will make comparatively little difference to the number found in the uncorrupted lymph. For serophytes will multiply rapidly unless constantly kept down by phagocytosis. Again, in the same way, whether few or many sero-saprophytes are left behind would not make much difference to the number found in the uncorrupted discharge. For sero-saprophytes grow very badly on this medium. But the factor which will readily exercise a determining influence on the result will be the rate at which the lymph becomes corrupted. And the practical conclusion emerges that what is really difficult in dealing with an infected wound is not to thin out the microbes, but afterwards to keep down their numbers. We are here carried along by our train of thought

to the "dressing of the wound"; and in connexion with this we may put the following question to ourselves:—

(3) *What conclusions can be drawn from the fact that frequent re-dressings are indispensable in connexion with the treatment of infected wounds by antiseptics?*

This is one of those questions of which we realise the fundamental significance as soon as they formulate themselves in the mind. When our treatment has miscarried, and the wound has filled up again with pus, and this has become tryptic and has begun to digest the granulations and skin surfaces with which it comes into contact, and when bacterial poisons are being absorbed into the system, we are compelled to re-dress the wound. In other words, when we have been falling away we have to try to get back to the position which was reached at the previous dressing. And let us in this connexion note that it is one thing to be able when unsuccessful to fall back upon dressing, and to make of this a point of departure for trying a new way; and quite another thing to accept dressing as a necessary and inevitable element in our programme of treatment, and then not even to propose to make it a point of departure for a new therapeutic effort, but calmly to contemplate an everlastingly repeated setting out into a blind alley, and an everlastingly repeated return to our point from which we started. If grace had been given us to see things with unsophisticated vision, it would be clear to us that to make constant re-dressing an integral and indispensable element in our programme of treatment is really as much of a confession of failure in the case of an infected wound as in a surgical operation. It is equivalent to saying that our method of treatment leaves the wound in a condition which makes healing impossible. And, finally, this leads on directly to the question:—

(4) *How are we, in view of all the above, to account for confidence in the utility of the antiseptic method of treatment?*

We may here begin by emphasising that in all probability the antiseptic method, considered as a method for preventing the importation of foreign germs into the wound, has deserved everything in the way of praise that may have been said of it. For it is no doubt owing to the fact that antiseptic solutions have everywhere been employed for washing out the wounds, that there have not developed in the military hospitals in this war any of those graver forms of infection which in pre-Listerian days never failed to put in an appearance. When, how-

ever, we pass from prophylaxis to treatment, and from the consideration of the effects in connexion with the patients, taken as an aggregate, to the effects which manifest themselves in the individual who is under treatment, it is then that we come face to face with the problem as to how it has come about that the obvious non-success of the antiseptic treatment is not generally appreciated. It seems to me that this also must be put down to sophisticated vision and to the effects of education. We must remember that the practitioner of to-day has been educated to expect to find, within a few hours after washing out an infected wound with antiseptic, as much pus and as many microbes as when he last came to dress it.

We now pass to

TREATMENT BY PHYSIOLOGICAL METHODS.

We shall do well to begin by putting quite away from us the current preconception that to abandon antiseptics would be equivalent to abandoning the programme of killing microbes in the wound. A moment's reflection will show that Nature has from the very beginning of things been bringing to bear her own antibacterial agents on infecting microbes; and that we have in antiseptics merely a recent substitute for these. Moreover, the surgeon, in treating wounds, has all along, though not with conscious aim, been bringing the antibacterial agencies of the body to bear on the infecting microbes.

In treating a wound infection by physiological methods we have therefore only to follow the surgeon's lead. But we may hope, as we go along, to improve upon his methods. For we shall fix our attention on the guiding principle which he has missed.

The chief points which the surgeon has insisted upon in connexion with the treatment of infected wounds and tissues are the following: Where there is an abscess sac or a closed cavity containing pus, this must be laid open, and an outlet for the discharge must be provided—if possible in the most dependent part. Where an infection has spread diffusely in the tissues, free incisions must be made; and where these incisions pass through infiltrated tissues they must be carried from sound skin to sound skin, and all the way down to the healthy structures underneath, and here hot fomentations should afterwards be applied. Lastly—and this is one of the teachings of the present war—when amputating through infected tissues unrestricted drainage must be provided: either by leaving the wound unsutured, or (in cases of

gas phlegmon) by reverting to the mediæval method reintroduced by Fitzmaurice Kelly, of cutting the limb squarely across, and dispensing entirely with flaps.¹

Let me now try to show you that all these procedures—and it will not be necessary to consider them all in detail—will in the ordinary case bring the antibacterial agencies of the body into play. And let me further try to show you that when they fail to do this satisfactorily, they never, even when they accomplish all that the surgeon asks, do any effective good in combating the infection.

I shall begin by considering the *rationale* of opening up the abscess sac. The popular explanation accounts for the utility of this procedure by telling us that it provides issue for the infected discharges. But that is quite inadequate. For not only does the operation provide issue for the infected discharges, but when it succeeds it brings about the destruction of the microbes which are embedded in the walls of the abscess sac. In reality it alters the whole situation. In the unopened abscess the antibacterial agencies of the body are overborne by the mass effect of the infecting microbes. The white blood corpuscles in the abscess sac are paralysed, or killed; and all the antibacterial power of the lymph has gone. In the abscess that has been laid open and emptied, the infected bacteria are overborne by the mass effect exerted by the antibacterial agencies of the body. Fresh antibacterial lymph is streaming in through the walls; and phagocytically active leucocytes are emigrating into the empty cavity. But for all that the infecting bacteria are overborne, the infection is not necessarily extinguished. The laying open of the abscess does not always put everything right. The mechanical conditions may leave much to be desired. It may be necessary to obtain a larger outpouring of lymph to wash the embedded bacteria out of the walls of the wound, and to prevent them accumulating in the abscess cavity and effluent channel. Again, the antibacterial agencies of the body may require to be brought into more effective operation. It may be desirable to bring to bear on the microbes both a greater volume of antibacterial lymph and a larger force of phagocytes; or it may be proper to repress the emigration of leucocytes so as to prevent any breaking down of these in the wound.

Now the supplementary surgical procedures which were enumerated above, all contribute, more or less effectively, to the accomplishment of one or other of these ends.

¹ *Lancet*, January 2, 1915, p. 15.

Drainage-tubes are devices for preventing the accumulation of infected discharges. But they do not really keep down bacterial growth in the walls of the abscess cavity. There ought to flow out from a wound not a pus composed of disintegrated leucocytes and microbes, but a lymph which is inimical to microbes, and favourable to phagocytic activity; and things do not begin to clear up in a wound till its effluent runs clear.

Free incisions carried down into infiltrated tissues are intended to furnish an ample outlet. But in reality the dimensions of the outlet do not necessarily correspond to the superficial area of the incisions. In point of fact the effective outlet will in infiltrated tissues correspond only to a small section of that area. For the lymph spaces are blocked with leucocytes and fibrinous exudation. And there will, moreover, ooze out from the cut surfaces a highly coagulable lymph, which very quickly seals up any open pores.

Hot fomentations, in addition to macerating and bringing away the inflammatory exudate, will induce active hyperæmia, and so increase the outflow of lymph.

Leaving operation wounds unsutured and dispensing with flaps will, as already explained, give unrestricted drainage—so far at least as the mechanical conditions are concerned.

We have now arrived at some sort of a general idea as to what would be embraced under the term "Treatment by Physiological Methods," and we have realised that the empirical procedures of the surgeon furnish us with something to work with and improve upon.

It will be taking a first step to the improvement of these methods if we draw up for ourselves a complete list of desiderata. We shall, in setting these out, have to bring them into relation with the actual types of wound infection which come up for treatment.

In reality our infected wounds conform, nearly all of them, to one or other of two types: In the *first* type we have an infection of either the unclothed internal surface of the wound, or of the granulation tissue lining it. Examples of this type of infection are furnished (a) by recent projectile wounds whose walls are implanted with microbes; (b) by suppurating cavities which have just been opened up and evacuated; and (c) by old-standing suppurating wounds which have just been washed out and left clean. In our *second* type of wound we have an infection in a dry and infiltrated wall of an infected cavity and in the tissues contiguous to this.

In the former type of wound infection it would be a desideratum

to wash the infecting microbes out of the walls of the wound by means of a powerful outgoing current of lymph; and it would be desirable in connexion with this lymph that it should carry in with it into the infected cavity whatever force of phagocytes might be required; that it should furnish a favourable medium for, and directly assist, phagocytosis; that it should repress bacterial growth; and that it should not suffer any sensible diminution of antitryptic power if, after ineffective phagocytosis, a certain number of leucocytes broke down in it.

In the second type of infection, while everything that applies to the first type would apply, it would probably be desirable, as special measures, to repress further emigration of leucocytes, and to render the lymph incoagulable so as to prevent any stanching of the lymph outflow.

For the complete realisation of these desiderata we should require to have at disposal an agency for powerfully increasing the outflow of lymph. (I propose almost immediately to show that we have this at disposal.) Further, it would probably be necessary to have at disposal—but till further research has been carried out it is impossible to speak with certainty on this subject—means for promoting and repressing emigration. And lastly, it would almost certainly be necessary to be in a position to increase at need not only the antibacterial power of the lymph with respect to the infecting microbes, but also its general power of repressing the growth of sero-saprophytes. This however, will come up for consideration in connexion with treatment by vaccine therapy.

As just announced, I pass now to consider what agents we have at disposal for increasing the outflow of lymph. In this connexion we have already seen that the lymph flow from the wound can be increased by the application of hot fomentations. It can be increased also by introducing ether into the wound—the ether, like the hot fomentations, no doubt acting by inducing active hyperæmia.

But I think that better than either of these, because it is more continuous in its action, and because it renders the lymph incoagulable, and also perhaps because it represses emigration, is the lymphagocic application which I have been recommending now these many years back. This consists of a 5 per cent. solution of common salt, mixed with $\frac{1}{2}$ per cent. of sodium citrate. This brings into play osmotic forces, and “draws” the lymph out of the walls of the wound by a *vis a fronte*. The sodium citrate is added with a view to decalcifying the outflowing lymph and rendering it incoagulable.

I may perhaps be allowed to say with regard to this lymphagogenic solution—or, rather, with regard to the simple 5 per cent. salt solution, which I find works in most cases equally well—that it has in this war proved itself pre-eminently useful. When brought into action upon a dry and infiltrated wound, or a wound that is foul and covered with slough, it resolves the induration, brings back moisture to the surfaces, and cleans up the wound in a way that no other agent does. Applied in gaseous gangrene in the form of a wet dressing to incisions which have been carried down into infected tissues it causes lymph to pour out of the wounds, and arrests the spread of the infection. And, again, applied in gaseous gangrene to an amputated stump in cases where it has been necessary to leave infected tissues behind, it reverses the lymph stream and draws out the infected lymph—saving life in almost desperate conditions.

What would be the proper culmination and end to the treatment of wound infections by physiological methods?

We have now arrived at a point when it will be proper to keep our eyes somewhat less closely upon the ground, and to ask ourselves what kind of a coping-stone is to be placed upon our edifice of physiological treatment. For it is clearly unthinkable in connexion with such treatment carried out on scientific lines that it should lead to nothing better than to that everlasting dressing and re-dressing of the wound which all antiseptic treatment seems to consist of. I am convinced that, when once we shall have learned exactly how to regulate the out-flow of lymph, and to control emigration and phagocytosis, it will be practical policy to make an end, once and for all, to a wound infection, and to close up the wound.

Even as we stand at present that seems to me to be to some extent a realisable ideal. While it would lead too far to follow up this question in detail, it will, perhaps, not be amiss to direct attention to the following points:—

It will always and ever be impossible to sterilise a wound within the space of a few minutes. To wash out microbes from the granulation tissue will always take time. And we shall always have to allow time for the leucocyte to find the microbe; and for phagocytosis; and for the digestion of the microbe in the interior of the phagocyte. And again, and above all, we shall always have to allow a very large margin of time for the miscarrying of lymph lavage, emigration, phagocytosis, and the intracellular destruction of the microbes, and for the necessary going back over all these processes.

In view of this it will be clear that when we embark upon physiological treatment we ought to carry it out unremittingly. And our treatment will perhaps best take the form of continuous irrigation or continuous baths.

When by these means we think we have rendered our wound sterile, or nearly sterile, we must, in closing up the wound, or in giving it an opportunity of healing up under a scab, always proceed by the method of trial and error and provide for the possibility of the microbes again assuming the upper hand.

TREATMENT BY VACCINE THERAPY.

I emphasised at the outset of this discourse that treatment by vaccine therapy could take rank only as ancillary to treatment by physiological methods. In *treatment by physiological methods* we take the antibacterial agencies of the patient just as they are, and do our best to bring them into more effective application on the infective microbes. In *vaccine therapy* we seek to reinforce those agencies. We endeavour to increase the bacteriotropic power of the blood, and to modify the chemiotropic sensibility of the leucocytes. And, now that we have come to appreciate its importance, we should seek to increase also the antitryptic power of the blood fluids.

Let us try to see how the case for vaccines and vaccine-therapy stands, keeping always before us the great practical issue as to how much clinical benefit can in the particular case be secured for the patient, and arranging, for the purposes of our survey, the manifold applications of vaccines under six subheadings.

(1) *Prophylactic Employment of Vaccines*.—This is not only from the theoretical point of view the best of all methods of employing vaccines, but it is also the method which gives, in practice, the maximum of advantage. We have only to look to the results obtained by prophylactic vaccination against small-pox, cholera, plague, and typhoid fever.

(2) *Employment of Vaccines in the Treatment of Localised Bacterial Inroads*.—Next to prophylactic inoculations, this gives the best results. And the results, in respect of their being almost immediately manifest to the eye, are even more dramatic than those of any preventive inoculation. Perhaps the most rapid and convincing results are those obtained by small doses of streptococcic vaccine in lymphangitis and erysipelas; by staphylococcic vaccine in furunculosis, when the boil is

just beginning to develop; and by minimal doses of tuberculin in phlyctenular affections of the conjunctiva.

(3) *Employment of Vaccines in dealing with Unopened Abscesses and other Localised Infections where the Microbes cannot be reached from the Blood-stream.*—Vaccines are here, so far as appears to clinical inspection, quite inoperative.

(4) *Employment of Vaccines in the Treatment of Localised Infections associated with heavy Auto-inoculations.*—The scientific application of vaccines in these cases is extremely difficult and laborious, and the results which are obtained—and those obtained in the treatment of developed phthisis by tuberculin supply a good example—are not very convincing.

(5) *Employment of Vaccines in the Treatment of Undrained Wounds infected by Sero-saprophytes.*—There is not yet a sufficient body of experience to decide the question as to whether benefit can be obtained from vaccines in these cases. The question will be further discussed below in connexion with the wound infections of the war.

(6) *Employment of Vaccines in the Treatment of Septicæmic Infections, and, in particular, Streptococcic Septicæmias.*—Up to the present—except perhaps in certain series of experiments relating to typhoid fever—vaccines have, on the whole, given very disappointing results. But it will be obvious on consideration, that as we advance through the whole series of applications—from prophylactic application to the employment of vaccines in septicæmias—the conditions are becoming progressively more difficult; so that success in treatment of septicæmias, if it is ever attained, will be the very final achievement of vaccine therapy.

We have now prepared the ground for considering what has been obtained by the use of vaccines in the treatment of wound infections in this war.

I have, in connexion with this, heard the opinion of a very distinguished French surgeon—pronounced after watching the effect of vaccines upon, I should think, undrained wounds and septicæmic infections—that they had never done any good. I shall, by my general survey above, at least have put you on your guard against generalising from one class of cases to all other cases. Let us now take each class of case separately, and ask ourselves whether, in this, vaccines have rendered any service. I think we shall then see that things work out everywhere in accordance with scientific law.

(1) *Prophylactic Inoculations of "Antisepsis Vaccines."*—If prophylactic inoculations of this kind have not been undertaken in our army,

it has not been because a supply of antiseptics vaccines has not been at hand, but because the idea of undertaking such inoculations has not appealed to the individual medical officers who have given first aid to the wounded. And if any prophylactic inoculations have been undertaken, this can have been only on a very small scale; and the fact has not transpired. To be considered therefore here is only the question as to what we should on a priori grounds be justified in expecting from prophylactic inoculations against wound infections, undertaken upon the wounded. The answer is, I think, not doubtful. We might justifiably hope, in a proportion of cases, to sterilise the upper reaches of the wound which would be less heavily implanted; and perhaps in isolated cases—those in which we have a comparatively light sowing of microbes—to sterilise the whole wound. Moreover, if we could employ vaccines in combination with *physiological drainage* (I mean, by that, free outpouring of lymph obtained by the use of a lymphagogic solution) we might, I think, hope to stave off infection in a fairly large proportion of cases. But—and I have already, though perhaps not emphatically enough, drawn your attention to this in connexion with prophylactic applications of antiseptics—it will, when we set out to sterilise a wound, nearly always be a question of achieving either all we want or nothing. To leave behind, especially in the upper reaches of a wound, a few microbes, which immediately set to work and multiply, amounts, from the point of view of the future of the wound, to exactly the same as leaving behind alive the whole original population. If one really intends a war of extermination there must be no remissions; and if our first effort with vaccines and physiological drainage fails, we must immediately follow up with further efforts.

(2) *Employment of "Antiseptics Vaccines" in Cases where the Microbes make an Irruption into the neighbouring Tissues.*—In connexion with projectile wounds it is not very uncommon to see the infecting microbes breaking bounds, and making an irruption into the neighbouring tissues. This will occur either in a wound which has not been laid open, or where the lymph flow has stanced, and the microbes have been imprisoned in an infiltrated wall. The bacterial irruption may follow the course of the lymphatics as a lymphangitis; or it may take the form of an erysipelas or cellulitis. In these forms of infection occurring in connexion with projectile wounds, vaccines give exactly the same dramatic effects as in the small wounds of civil life—the only difference being that, when the irruption has been beaten back, we have in the case of projectile wounds still the original focus of

infection to deal with; and have, unless we improve the condition of the wound, always to be upon our guard against a renewal of the irruption.

(3) *Employment of "Antisepsis Vaccines" in connexion with well-drained Wounds.*—When we have in a wound quite unobstructed mechanical drainage—such, for instance, as is proved by amputation without flaps—we have, from the point of view of the immunologist, conditions exactly parallel to those which obtain when microbes make a first irruption into healthy tissues. In other words, we have here—and probably also where we have good physiological drainage—brought to bear upon the microbes an ample force of phagocytes in conjunction, it may be, with a rapid percolating or outflowing stream of lymph. As a consequence, vaccines give in these cases results which are so strikingly favourable as to arrest the attention of every beholder.

(4) *Employment of "Antisepsis Vaccines" in imperfectly drained Wounds.*—An overwhelming proportion of projectile wounds which are under treatment in hospital would, regarded from the point of view of the mechanical conditions, come into the category of imperfectly drained wounds. And this is as it must be. The conservation of the wounded limb is clearly the first object of the surgeon; and the treatment of the bacterial infection is quite subordinate. For example, no one could ask that a leg which had been perforated by a bullet should be cut free from all its attachments to give better drainage to the infected track.

Now it might be legitimate to say that these undrained wounds were analogous to the unopened abscesses referred to above, were it not that this comparison would do much less than justice to the difficulties which confront the immunisator in the wound where pus accumulates. Not only have we in the recesses and backwaters of such a wound conditions which make it impossible for the antibacterial agencies of the body to establish by their mass effect a position of superiority over the microbes; but we have in the corrupted discharges and the multiform bacterial growth which they harbour, obstacles to successful immunisation such as are never encountered in an unopened abscess cavity. It is therefore not to be expected that we should in these cases see—and in point of fact we do not see—after the exhibition of vaccines any diminution in the pus which pours from the wound.

None the less we shall do well carefully to consider certain questions in connexion with the employment of vaccines in the treatment of imperfectly drained wounds. It is clearly a matter for consideration

whether—despite the fact that the output of pus from the wound is not diminished—there may not be some useful clinical result from the vaccines. It is quite likely that there is such an effect; and that it takes the form of a “nibbling” at the infection in those parts of the wound lying above the ground level of the pus; a better entrenchment against the microbes; and, behind this, a massing of reserves which would be brought to bear if the microbes were to irrupt into the surrounding tissues. In short, it is not unreasonable to think that the antiseptic vaccines might aid the surgeon in his conservative surgery, and might enable him to hold on longer when trying to save a limb.

Two further questions—questions which also cannot yet find answers—come up for consideration in this place. The one is the question whether it would not be possible in many cases to convert by physiological drainage an undrained into a drained wound, and then to obtain good results by the use of vaccines. The other is the question as to whether or no the bacteriotropic substances produced in response to antiseptic vaccines would come into operation upon sero-saprophytic microbes in corrupted discharges, and in lymph whose antitryptic power has been artificially diminished.

(5) *Employment of “Antiseptic Vaccines” in Septicæmias supervening on Wound Infections.*—On this question there is nothing that can be usefully said other than that until scientific knowledge has progressed much beyond where it is now, it might be well to act upon the suggestion made above with regard to the possible utility of antiseptic vaccines in staving off septicæmic infections.

We now at the end of our survey come to the summary. That summary would clearly be, that the results of the inoculation of “antiseptic vaccines” have conformed in everything to scientific expectation. Of the five possible applications of vaccine therapy, the *second* and the *third* have, according to anticipation, given strikingly favourable results. The *fourth* and the *fifth*—but perhaps certain reserves may be made in connexion with the *fourth*—have given, as anticipated, very unfavourable results. And that prophylactic employment of antiseptic vaccines, which has not yet been put to probation, would seem eminently deserving of an extended and careful trial, preferably in conjunction with physiological drainage.

EPILOGUE.

And now, except for a few concluding words, I have completed what I had to say. Up to this point we have considered only the scientific problems which confront us in wound infections. What we have now to consider is how this, and similar researches, and all that new clinical experience which has been won in this war, can be made useful to the wounded.

This is a question of setting up machinery for directing and co-ordinating the work of the medical officers engaged in the treatment of the sick and wounded. And, I take it, on a question of that kind the medical profession at home will have a voice, and, if unanimous, perhaps even have a deciding voice.

In order to enable you to judge what changes in the system would be required to give effect to the idea that medical officers should bring into application the latest lessons of experience and science, I will venture to remind you how the Medical Service of the Army is at present organised.

We have in the Army Medical Service, as it seems to me, three different and distinct services—a *Service of Administration*, a *Service of Hygiene and Sanitation*, and a *Service for the Treatment of the Sick and Wounded*.

The Service of Administration—and among the three services it comes easily first in order of importance—takes charge of the wounded man on the battlefield; conveys him first to the dressing station, field hospital, and clearing hospital which are ranged one behind the other at the front; thence transports him in an ambulance train to the hospitals at the base; afterwards embarks him in a hospital ship; and, at the end of his journey, provides him with hospital accommodation at home. The Service of Administration has further to see to the feeding, clothing, bedding, nursing, and medical treatment of the man in hospital, and in transit; has to look after all manner of surgical and medical stores and equipment—besides providing in a thousand other ways for the proper working of the hospitals and hospital camps.

The Service of Sanitation has to protect the Army against epidemic disease by attending to water supply, conservancy, and antityphoid inoculation. It has to keep a watchful eye on every case of infectious disease; to detect carriers; to equip, and man, the bacteriological laboratories required for this purpose; and to intervene in ways too numerous to mention to prevent the dissemination of infection.

The duties in connexion with the aforesaid services devolve almost exclusively upon the permanent officers of the Royal Army Medical Service. Their work, as every one at the seat of war knows, has been quite marvellously well done. And what stands already very high in the esteem of all the world needs no more words of praise from me.

There remains the *Service for the Treatment of the Sick and Wounded*. After supplying all the multifarious duties just enumerated, there are very few medical officers of the permanent staff of the Royal Army Medical Corps left over. Hence nearly the whole care of the sick and wounded has fallen to the civil practitioners enlisted for temporary service with the Royal Army Medical Corps. For this, if for no other reason, it must be the special concern of the civil profession to do all that in it lies to help the Medical Staff of the Army to employ to the best advantage the civil practitioners now serving as medical officers in military hospitals.

What has been done in the way of regulating the work of these new-joined medical officers has been to transplant practically unaltered into the military hospitals the organisation under which medical practitioners work in civil life and in peace.

The treatment of the sick and wounded is committed, as it is in private and hospital practice at home, into the hands of individual practitioners, there being assigned to each a certain number of patients, or a ward. And, just as at home, where each medical man is in practically independent charge of his cases, and is free to follow whatever treatment appeals to him, so is it in the military hospitals. And just as at home the free exercise of private judgment carries with it an exclusive responsibility, saving only in those cases where a consultant is called in to advise, so also is it in the military hospitals.

Now, I submit that this unchartered freedom can work for good only in conditions such as those which surround us at home. At home, the practitioner finds himself practically always upon ground with which he is familiar. The cases which he deals with in his practice are similar to those he has seen treated in hospital. And if he should find himself upon unfamiliar ground he will, before he need take action, have time to inform himself. Moreover, though new science filters in slowly, it does filter in. And, finally, when the medical practitioner at home makes a new experiment in treatment, he—and this is the all-important point—does learn what results. He can, therefore, profit from the teachings of experience.

Now, the conditions in military hospitals abroad are quite different

from these. The practitioner is there on quite unfamiliar ground. He has to confront unfamiliar problems—problems in connexion with projectile wounds and wound infections. He has to take immediate action. He has very little opportunity to find out what has happened in similar cases. And lastly—and you will see that upon this point everything pivots—he has very little opportunity of seeing the results of his work, and learning whether his treatment has been wrong or right. For the military hospitals in France, both at the front and also at the base, have now, through military necessity, become little more than clearing hospitals, from which cases, if at all fit to travel, are immediately sent upon their homeward journey.

There are thus lacking in the military hospitals in France all those provisos and safeguards which alone can make successful a system in which each medical man is a guide to himself. And carried out without those safeguards that system is unjust both to doctor and patient.

The doctor feels himself left in the lurch when he is not warned off from trying experiments in treatment which a hundred others have unsuccessfully tried. He fain looks for a lead where a successful treatment has been discovered. And, where there are a number of alternative treatments, he would be glad to see comparative experiments instituted to tell him which method is best. Nor is the doctor the only person interested. The patient, his relatives, and the whole nation would, once their thoughts were directed to the matter, feel that they had the vital interest in making the work of the medical officer as effective as possible.

If this is to be done it will, I believe, be necessary to make a fundamental change in the organisation of the Medical Service—to break away from the principle of free arbitrament in treatment for the Medical Officer, and to provide that all treatment shall be regulated by orders and instructions.

These are, as you see, very big issues. It is a question of a conflict between our cherished professional tradition that every medical man must be quite unfettered in his choice of treatment; and the very foundation principle of the Army, that every man shall work, not as he individually thinks best, but as part and parcel of a great machine.

The question as to which of these shall give way to the other must, of course, be decided by the balance of public advantage. And we cannot seriously doubt as to which side that balance inclines. We have only to consider what has been achieved in this war by antityphoid inoculation, and the preventive injection of antitetanus serum; and to

compare the brilliant results of these measures, enjoined as they are by direct instructions from headquarters, with the results which would have been obtained if their carrying out had been committed to the individual judgment of medical men who had not had before the war any opportunity of convincing themselves by personal experience of the utility of either antitetanus or antityphoid inoculation.

If now, as we see is the case, considerations of public utility commend the control of treatment of the sick and wounded by orders and regulations, let me in conclusion very briefly consider with you how under such a system there might be obtained a maximum of advantage with a minimum of disadvantage. I shall, of course, indicate only in very broad outlines what would seem to me to be the requirements.

I believe there would require to be a Professional Head to the Service for the Treatment of the Sick and Wounded. He would, of course, be subordinated to the Director-General, and his duties would be to bring up the work of the medical officers everywhere to the highest standard, and to co-ordinate their work from hospital to hospital.

It would further, I think, be necessary to have an Advising Committee who should be charged with the duty of synopsising the clinical experience won in the war; of finding out what results the various therapeutic procedures had given; and of drawing up on the basis of these inquiries general instructions and recommendations for the treatment of different categories of cases. On a Committee of this sort one would, of course, wish to see representatives of surgery, of medicine, of the various specialities, and of pathology and bacteriological science. But one would wish to see the membership restricted to those who were actually at work at the seat of war, and who were prepared to take full responsibility, and carefully to watch the working of the recommendations, and at any moment to revise them in the light of accumulating experience or further laboratory experiments.

Finally, one would wish to see attached to such a committee a Research Department for the resolution of all bacteriological questions arising in connexion with hygiene, surgery, and medicine. And I may perhaps be allowed, in connexion with this last, to point out that the Medical Research Committee of the National Insurance Act, under whom I have the honour to serve as Director of Bacteriological Researches, has, since the outbreak of the war, been placing not only large funds but a carefully selected corps of skilled workers at disposal for the prosecution of researches directly contributory to the better treatment of the wounded. It is for you to see that full advantage be taken of the results as they are obtained.

Proceedings of the Royal Society of Medicine.

SUPPLEMENT

(VOL. VIII, No. 1, NOVEMBER, 1914).

NOTES ON BOOKS.

[The purpose of these "Notes" is neither to praise nor to blame, but merely to draw attention to the new books and new editions which have been added to the Society's Library.—ED.]

ESSENTIALS OF PHYSIOLOGY. By F. A. BAINBRIDGE, M.A., M.D.Cantab., D.Sc.Lond., F.R.C.P., and J. REWORTH MENZIES, M.D.Edin. Illustrated. Price 10s. 6d. net, 8vo. London: Longmans, Green and Co., 1914.

The author's aim in this book has been to bring together in a concise form the fundamental facts and principles of physiology, primarily for the purpose of meeting the requirements of the medical student preparing for a Pass examination. Histological details and descriptions of chemical and experimental methods belonging to the laboratory course have been as far as possible excluded, separate text-books being available for this branch of the student's work. By this exclusion the volume has been kept of a moderate size, and has enabled the authors to devote more space to the essential object of their work. A point of some importance is the fact that the anatomical nomenclature in use in this country has been retained, while the Basle nomenclature is inserted in brackets. Until this question of terminology is definitely settled the old nomenclature may still be expected to be received with the most favour.

SYRIAN ANATOMY, PATHOLOGY, AND THERAPEUTICS; OR "THE BOOK OF MEDICINES." The Syriac Text, edited from a rare manuscript, with an English translation, &c., by E. A. WALLIS BUDGE, M.A., Litt.D. Published under the direction of the Royal Society of Literature of the United Kingdom. Vol. I.: Introductory; Syriac Text. Vol. II.: English Translation and Index. Pp. (Vol. I), clxxviii + 614; (Vol. II), xxvi + 804. Price 42s. net. London: Humphrey Milford, Oxford University Press, 1913.

At some unknown date, perhaps twenty centuries ago, an earnest follower of Hippocrates, who had great faith in the usefulness of human dissection, wrote in Greek his lectures upon Human Anatomy, Pathology, and Therapeutics, and these were translated from Greek into Syriac by a Syrian physician, who was probably attached to one of the great medical schools of the East, early in the Christian era. Unfortunately the Syriac manuscript, copied for Dr. Budge at a little town on the Tigris, gives the name of neither the author nor the translator, but, thanks to the Royal Society of Literature and to Dr. Budge's translation into English, we are able to get a clear insight into the knowledge possessed by the disciples of Hippocrates. Though the lecturer's knowledge of anatomy was limited, for he confused arteries, veins, nerves, and tendons, he was well aware of the importance of the brain, which governs the senses and nerves; the heart, which governs the body and transmits

life to every part of the body; and the liver, which governs digestion and changes food into blood. He who cannot make a correct diagnosis cannot heal the disease, hints the lecturer, and he prescribes diet for the healthy as well as the sick. Moderation is preached, and he quotes with approval the saying of a philosopher, "I wonder how a man who does not over-eat himself can ever die." Bleeding, purging, emetics, enemas, fomentations, poultices, and baths are all praised. Nearly a thousand prescriptions are given, resembling those found in the Ebers Papyrus, but it is doubtful whether any of them will be adopted by Fellows of the Royal Society of Medicine. The second section of the book deals with astrology, and was probably written by a scribe who had more faith in spells and divinations than in the teaching of Hippocrates. The third and final section, with its extraordinary prescriptions, throws light upon the folk-lore of Mesopotamia. As we should expect in a scientific treatise, there is no mention from first to last about the fees of the physician, but we can guess that he may have lived in the Babylonian days, when, if a surgeon performed a serious operation upon the slave of an officer and "brought him to death," he had to replace the slave by another!

PRÉCIS DE CHIRURGIE DE GUERRE. Par EDMOND DELORME. Illustrated; pp. ii + 231. Price 4s. net, small 8vo. Paris: Masson et Cie., 1914.

Dr. Delorme tells us that he began his career during the disasters of 1870. He is now Medical Inspector-General of the French Army. This précis of military surgery was "tracé d'un jet" after "the unexpected declaration of this war" during long days of labour and nights devoid of ease both in Paris and at the front, no matter where. It is the outcome or development of his "Conseils au Chirurgiens," which have been circulated in large numbers to surgeons both at the front and at the base. It is a manual of military surgery—a small and compendious volume, with rounded corners, evidently intended for the pocket. It deals shortly with technical subjects, such as the varieties of implements with which wounds are produced in war—cold steel, shells, bullets, &c., and also with projectiles, ballistics, and matters of that kind. It then discusses the nature of the wounds produced by instruments of war in a general way, and describes first-aid and subsequent methods of dressing. The greater part of the book is devoted to injuries of particular tissues and regions of the body, in which the peculiarities of each, the complications and treatment, are dealt with in more or less detail. Throughout, the differences between military and civil practice are emphasised. Useful tables for the recording of cases are given at the end. There are a few illustrations.

TUBERCULOSIS OF THE BONES AND JOINTS IN CHILDREN. By JOHN FRASER. Illustrated; pp. xvi + 352. Price 15s. net, large 8vo. London: A. and C. Black, 1914.

The work is divided into two parts. The first, or general, part deals with the ætiology, pathology, clinical features, diagnosis, X-ray examination, prognosis, and treatment of bone and joint tuberculosis, while in the second, or special, part tuberculous disease of individual regions affected in children is similarly discussed. A full bibliography of recent literature is appended to each section. The volume is illustrated by 51 full-page plates and 164 figures in the text, and contains a full subject and authors' index.

AN INDEX OF DIFFERENTIAL DIAGNOSIS OF MAIN SYMPTOMS. By VARIOUS WRITERS. Edited by HERBERT FRENCH, M.A., M.D.Oxon., F.R.C.P.Lond. With 16 coloured plates and 200 illustrations in the text; pp. xii + 1017. Price 21s. net, 8vo. Bristol: John Wright and Sons, Ltd., 1913.

This work has been twice reprinted since the issue of the first edition in March, 1912. It was designed to form a companion volume to the publishers' "Index of Treatment" which appeared in 1907, six editions of which have been called for. The various symptoms are arranged alphabetically in the body of the book; the general index at the end gathers these together under the names of the different diseases in which they occur. Treatment, pathology and prognosis are only dealt with so far as they bear upon differential diagnosis.

HISTORICAL SKETCHES OF OLD CHARING. THE HOSPITAL AND CHAPEL OF SAINT MARY RONCEVALL. ELEANOR OF CASTILE, QUEEN OF ENGLAND, AND THE MONUMENTS ERECTED IN HER MEMORY. By JAMES GALLOWAY, A.M., M.D., Senior Physician and a Vice-President, Charing Cross Hospital. Illustrated; pp. 82. Price 10s. 6d. net, large 8vo. London: John Bale, Sons and Danielsson, Ltd., 1914.

The first of these studies, "The Hospital and Chapel of St. Mary Roncevall," originally appeared in the History Section of the PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE. It throws light upon a chapter of ecclesiastical history, which though well known to students of the past records of London, has never hitherto been brought into full relief. The Hospital of St. Mary Roncevall, Charing Cross, was an offshoot of the Convent of St. Mary Roncevalles in the Pyrenees, and owed its foundation in London to the munificence of William Marshall, second Earl of Pembroke, who gave the brethren who came to seek alms in London for the mother foundation, lands and houses at Charing, and the revenues of property situate in other parts of the country. The Hospital at Charing was mainly under the domination of foreign ecclesiastics during the first half of its existence, and later it passed under the control of the English clergy, who were in conflict with their foreign colleagues for more than half a century. It was during the fifteenth century that the functions of the Hospital as a place of cure for the needy sick developed. In 1475 the Fraternity of St. Mary Roncevall was founded, but it lasted barely seventy years, as in common with similar institutions it was dissolved by Henry VIII, in 1544, and the property passed into lay hands. A calendar of the Hospital from the date of its foundation to the time of the Deed of Surrender is given.

The second study is a brief record of the well-known history of Queen Eleanor of Castile, wife of Edward I, followed by what is not well-known, namely, a detailed record, architectural and historical, of the crosses erected by Edward I to her memory. There is an engraving of the Queen's effigy, with several engravings and photographs (by the author) of the crosses.

THE CHILDREN OF THE NATION: HOW THEIR HEALTH AND VIGOUR SHOULD BE PROMOTED BY THE STATE. By the Right Hon. Sir JOHN E. GORST. Second Edition; pp. x + 297. Price 7s. 6d. net, 8vo. London: Methuen and Co., 1907.

This book is one of the earlier volumes in the "New Library of Medicine," issued by Messrs. Methuen. Apparently this new edition is a reprint of the first. Its title fully explains its theme—namely, the integral value to the State of the well-being of the nation's children. The author, following some introductory remarks pointing out the national interest in the subject, proceeds to develop his theme by dealing with such matters as infant mortality, the medical inspection of school children, underfed school children, overworked children, children's ailments, infants' schools, medical aid, and State children. The author discusses the difficulty of providing the funds necessary for initiating reforms in dealing with the nation's children.

THE BIOLOGY OF THE BLOOD CELLS, WITH A GLOSSARY OF HÆMATOLOGICAL TERMS. For the Use of Practitioners of Medicine. By O. C. GRUNER, M.D.Lond. Illustrated with coloured plates, micro-photograms and diagrams; pp. xii + 392. Price 21s. net, large 8vo. Bristol: John Wright and Sons, Ltd., 1913.

This work by Dr. O. C. Gruner, of Montreal, purports to bring up to date our knowledge of the clinical study of the blood diseases. As pointed out by the author, "Special stress has been laid upon the close relationship between changes in the blood-forming organs and the blood-picture as the clinician sees it, and also upon the minute morphology of the various blood cells, whether sessile or free-floating." Moreover, "above all, the attention of the student has been directed to the fundamental unity of design which is the basis of hæmopoiesis from birth to death throughout the animal kingdom." After some introductory remarks, the main subject-matter of the book is divided into seven chapters as follows:

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(1) The Primordial Blood Cell, (2) The Red Blood Cell, (3) The Lymphocyte, (4) The Large Mononuclear Leucocyte, (5) The Neutrophile Leucocyte, (6) Certain Phlogocytes, and (7) The Cytoplasmic Phenomena of Blood-forming Tissues. The progress of the science of hæmatology is shown in the book by the terminology which distinguishes it. In a glossary is explained the meaning of the terms employed, and it is not without interest to note that thirty-three pages are required for this purpose. References to the literature, an index of diseases, of authors, and of animals, respectively referred to in the volume, and a copious general index complete the work.

WINTER IN ALGIERS; WITH NOTES ON HAMMAM R'IRHA, BISKRA, AND OTHER PLACES OF INTEREST IN ALGERIA. By ALFRED S. GUBB, M.D. Ninth edition, with map and numerous illustrations in text; pp. 114. Price 2s., 8vo. London: Baillière, Tindall and Cox, 1912.

A brief description of the climate, scenery and flora of Algeria—the premier colony of France—forms the commencement of this small handbook. This is followed by fuller details of the city of Algiers, the native quarters, and the European suburb of Mustapha Supérieur. Hotel and private villa accommodation, once scanty and at monopoly prices, is now abundant. The climate of Algiers and its surroundings is good for those suffering from asthma, bronchitis, emphysema, heart and kidney disease, arteriosclerosis, gout, and rheumatism. But its most striking results are seen in the recoveries from incipient phthisis, indeed, a large proportion of the European inhabitants were formerly victims of that disease in its early stages, and are a living witness to the potency of the climate in this respect. Recovery from tuberculous laryngitis—usually a hopeless disease—has been known to result from residence in Algiers. As in the case of other resorts, pulmonary tuberculosis in its fully developed stages is not benefited, but if anything aggravated, by the Algerian climate. Hammam R'irha, with its hotel and bathing establishment; places of interest on the road to Biskra, such as Hammam Meskoutine and El Kantara, are also described, as well as Biskra, “the desert city,” now a popular health centre. A short account of Tunis and full details of the various routes to Algiers, with fares, conclude the work. The book is plentifully illustrated with photographic reproductions of scenery, antiquities, and social life in Algeria.

PUBLIC HEALTH LABORATORY WORK. By HENRY R. KENWOOD, M.B., F.R.S.Edin., D.P.H., F.C.S. Sixth edition, with illustrations; pp. xii + 418. Price 10s. net, 8vo. London: H. K. Lewis, 1914.

In this new edition the author has excluded all but occasional reference to bacteriological matters, in order to keep the volume within the compass of a handy laboratory guide to the chemical branch of public health laboratory work. His main reason for the adoption of this new policy is that the subject of bacteriology is well provided for by several excellent handbooks, from which the public health student can gain his bacteriological knowledge.

GUNSHOT INJURIES: HOW THEY ARE INFLICTED, THEIR COMPLICATIONS AND TREATMENT. (Prepared under the direction of the Surgeon-General, U.S. Army, and published by authority of the Secretary of War. By Colonel LOUIS A. LAGARDE, U.S. Army Med. Corps (Retd.). Illustrated; pp. x + 398. Price 18s. net, 8vo. London: John Bale, Sons and Danielsson, Ltd., 1914.

As the author says, he has as far as possible presented the characteristic features of wounds by the old armament in pre-antiseptic times, and compared these with the results of gunshot injuries by modern arms in the Spanish-American, Boer, Russo-Japanese, and Balkan wars. He has thus brought his account of them up to date. The work deals not only with the varieties of wounds caused by firearms of all descriptions, from toy pistols

and shot-guns to the largest howitzers, but also with such matters as projectiles, explosives, ballistics, and other very technical matters of military interest. It concludes with a chapter on the medico-legal aspects of gunshot wounds. Between these sections, which form, so to say, the cover of the book, will be found information in full detail on the nature and varieties of gunshot wounds, their complications and their treatment. The subject is dealt with from the general standpoint, and also regionally. There are a large number of illustrations. It is important to note the high authority under whose direction it has been prepared; for, as stated in the title, this treatise has been prepared under the direction of the Surgeon-General, U.S. Army, and revised in his office.

URGENT SURGERY. By FELIX LEJARS. Translated from the Seventh French Edition by WILLIAM S. DICKIE, F.R.C.S. (third English impression). Vol. I, Introductory: Head, Neck, Chest, Spine, Abdomen. Illustrated; pp. xvi + 614. Price 25s. net, 8vo. Bristol: John Wright and Sons, Ltd., 1914.

In the seventh French edition of this work by Professor Lejars are contained five additional chapters on, respectively, acute dilatation of the stomach, acute pancreatitis, obstruction of the mesenteric vessels, sigmoiditis and perisigmoiditis, and dislocations of the pelvis, while the whole work has been subjected to careful revision, and has been largely remodelled. By means of this translation Mr. Dickie has enabled English-speaking surgeons to become more closely acquainted with the surgical technique and practice of their French colleagues. There are several full-page plates, and the illustrations in the text amount almost to two on every page.

DISEASES OF THE RECTUM AND COLON, AND THEIR SURGICAL TREATMENT. By JEROME M. LYNCH, M.D. Illustrated; pp. x + 596. Price 21s. net, 8vo. Philadelphia and New York: Lea and Febiger, 1914.

This book, according to the author, has been mainly written for the benefit "of those practitioners who have not yet attained well-rounded experience in rectal and colonic surgery," and in view of this standpoint the subject is discussed "in very full detail." He points to the lack of teaching which prevails in the United States in respect of rectal surgery, emphasising this fact by stating that "there is not a university or medical college of any importance that has a recognised specialist as a professor of proctology," and he insists that the time has now come "when stool examination and proctoscopy will be known to be as important as blood examination and urinalysis." Although the book has been designed to appeal more to the practitioner than to the specialist, there is no doubt that the latter will find its pages of interest in showing the methods and experience of a well-known American proctologist. Moreover, the chapters upon the colon, such as those on colostomy and ileostomy, appendicostomy, short-circuiting, and constipation, contain matter of interest to the general surgeon. The book is profusely illustrated and has a full index.

PRACTICAL MEDICAL ELECTRICITY: A HANDBOOK FOR HOUSE SURGEONS AND PRACTITIONERS. By ALFRED C. NORMAN. Illustrated; pp. viii + 226. Price 5s. net, small 8vo. London: Scientific Press, 1914.

This book serves as a link between works on medical electricity proper and those written for the technical student, a knowledge of elementary principles not being taken for granted. The first half of the book is devoted to medical electricity, and the consideration of apparatus and technique is from the point of view of voltage, amperage, and resistance, as so many users of the X-ray are hampered by inefficient practical knowledge. The second part deals with radiography, all improvements to date receiving attention. X-ray diagnosis, the dangers of the X-ray, advanced X-ray work, such as orthodiagraphy, stereoscopic radiography, and the bismuth meal, are included, but radiotherapy is not touched upon.

THE STORY OF BETHLEHEM HOSPITAL FROM ITS FOUNDATION IN 1247. By F. G. O'DONOGHUE, Chaplain to the Hospital. Illustrated; pp. xx + 427. Price 15s. net, 8vo. London: T. Fisher Unwin, 1914.

This is the first complete history of this institution, and all the archives as far as 1850 have been placed at the disposal of the author. The Priory of St. Mary of Bethlehem was founded in Bishopsgate Without, on the present site of Liverpool Street Station, on October 23, 1247. It was a daughter house of the house of the Basilica of the Nativity, built in Bethlehem, Palestine, by the Emperor Constantine, A.D. 330. The work of the Hospital as an asylum was begun in 1337, when six lunatics were removed there from the "Stone House," which stood on the site now occupied by the National Gallery, land which at that time was the property of Bethlehem. Although in 1346 the House and Order of Bethlehem were taken under the patronage and protection of the City, Bethlehem was seized by the Crown on more than one occasion during the fourteenth century as an "alien Hospital." The Crown continued to appoint Masters, including John Arundell, Physician and Chaplain to Henry VI, and George Boleyn, brother of Anne, until Henry VIII in 1540 grudgingly granted Bethlehem with St. Bartholomew's Hospital to the City. The Great Fire spared the Hospital, but by 1674 it had become so ruinous that it was abandoned. A new site was found at Moorfields, now represented by Finsbury Circus, and here in 1676 was opened the "Palace magnificently built," designed by Robert Hooke, the scientist. This was the "Bedlam" of Hogarth and the Georgian days. Unfortunately, Hooke's Palace rested on insecure foundations, being built on the City moat, and by 1800 it had fallen into such disrepair that a third removal became necessary. The present building in St. George's Fields, Southwark, was begun in 1812, and opened in 1815. The book is copiously illustrated, and contains full information concerning the inmates, sane and insane, of Bethlehem Hospital, and the vicissitudes of fortune which it has undergone during its six centuries of existence.

LEAD POISONING: FROM THE INDUSTRIAL, MEDICAL, AND SOCIAL POINTS OF VIEW. Lectures delivered at the Royal Institute of Public Health. By Sir THOMAS OLIVER, M.A., M.D., F.R.C.P. Pp. x + 294. Price 5s. net, small 8vo. London: H. K. Lewis, 1914.

In publishing his lectures on "lead poisoning" in book form, the author has rendered his contributions upon the subject more accessible. The work shows how valuable State interference can become when directed towards safeguarding the public health, in respect to industrial processes which are harmful. By means of the Home Office regulations and inspections much has been accomplished to lessen the evil effects to which workers in lead are exposed; and good as the past has been in this regard, the author maintains that better results may still be expected. From the medical aspect a full description is given of plumbism and of how to deal with it; of its protean forms, and of the necessary methods of prevention. In an appendix is published, by permission of the Controller of H.M. Stationery Office, the factory and workshop orders relating to lead poisoning.

CLINICAL EXAMINATION OF THE BLOOD AND ITS TECHNIQUE: A MANUAL FOR STUDENTS AND PRACTITIONERS. By Professor A. PAPPENHEIM (Berlin). Translated and adapted from the German by R. DONALDSON, M.A., M.B., Ch.B., F.R.C.S.Ed., D.P.H. Pp. x + 87. Price 3s. 6d. net, small 8vo. Bristol: John Wright and Sons, Ltd., 1914.

This small book has been designed by the author to serve as an elementary guide to the clinical examination of the blood. For this purpose a simple technique is provided, controversial matter is excluded, and only absolutely essential details, of first importance, dealt with. The division of the text into three parts shows the scope of the volume—namely, (1) the blood film, inclusive of the method and technique of staining, the microscopic examination of and the differential diagnosis of the most important blood changes as seen in stained blood films; (2) hæmocytometry; and (3) hæmoglobinometry. The staining method recommended is May-Grünwald's solution, eosin-methylene blue, dissolved in methyl

alcohol, followed by Giemsa's glycerine-alcoholic solution of the Romanowsky stain, known as Giemsa's new formula. The cell types described have been taken from the author's "Atlas der menschlichen Blutzellen." Two coloured plates showing the chief cell forms likely to be met with precede the text.

QUAIN'S ANATOMY. Edited by Sir E. A. SCHÄFER, J. SYMINGTON, and T. H. BRYCE. Eleventh Edition. Vol. II, Part II, "Splanchnology," by J. SYMINGTON. Illustrated; pp. x + 392. Price 10s. 6d. net, 8vo. London: Longmans, Green and Co., 1914.

The present volume almost completes the eleventh edition of this well-known work on anatomy. There remains only the part which is concerned with the bones, ligaments, and muscles, upon which Professor Bryce is engaged, and which we understand will appear before long. The portions which have already appeared deal respectively with Morphology, Microscopic Anatomy, and Neurology, and each one forms a complete text-book of the particular subject with which it is concerned. The present part includes the topographical anatomy and morphology of the digestive, respiratory and genito-urinary systems, as well as the ductless glands and organs of internal secretion. There are a large number of original illustrations as well as skiagrams of the teeth.

ABDOMINAL SURGERY: CLINICAL LECTURES FOR STUDENTS AND PHYSICIANS. By THORKILD ROVSING. Edited by PAUL MONROE PILCHER, M.D. Illustrated; pp. xii + 477. Price 21s. net, 8vo. Philadelphia: Lippincott Co., 1914.

This volume, as indicated by its title, contains a series of clinical lectures delivered by the Professor of Clinical Surgery in the University of Copenhagen, translated into English and edited. They are essentially clinical, each lecture having reference to an individual case, or group of cases, shown to the students; in many instances the results of surgical treatment, both in regard to the diagnosis and the relief of symptoms, are added. As will be evident from the following headings of lectures, the book includes more *and* less than the title "Abdominal Surgery" suggests. Lecture I is upon "The Basis and Principles of Clinical Surgery." Lectures II and III deal with "Antiseptic Methods." Lectures IV and V are upon "Anæsthetics, General and Local." Part of Lecture VI, and the whole of Lectures VII and VIII concern structures which do not strictly fall under the heading "Abdominal." Lecture VI is headed "Foreign Substances contained in the Œsophagus, the Stomach and Intestines." Lecture VII is upon "Stricture of the Œsophagus," and Lecture VIII upon "Dilatation of the Œsophagus." Lectures IX to XXV deal chiefly with the "Surgical Treatment of Diseases of the Stomach." The subject of "Ulcer of the Stomach" is very fully considered, no fewer than seven lectures being devoted to it. Lecture XXI deals with "Cancer of the Stomach." Lecture XXII is entitled "Peptic Ulcer of the Jejunum: Technique of Gastro-enterostomy"; the author deals fully with several of the numerous methods by which this operation has been accomplished, drawing attention to some of the objections which he personally feels to these procedures. He concludes this Lecture by giving an account of the technique which he now employs. The last three lectures are devoted to Diseases of the Liver, including "Echinococcus Cysts, Abscess, and Chronic Jaundice." The remaining abdominal organs are not included in the series. The volume contains a large number of illustrations, and is furnished with an index.

THE HEART IN EARLY LIFE. By G. A. SUTHERLAND, M.D., F.R.C.P. Pp. xvi + 211. Price 6s. net, small 8vo. London: Henry Frowde and Hodder and Stoughton, 1914.

This book "deals with the clinical problems of cardiac disturbances and diseases during childhood and youth as they present themselves in the ordinary routine of practice." Within recent years many advances have been made in the elucidation of the problems of cardiac pathology in adult life, and an attempt is here made to apply the same methods of investigation during childhood and youth. In the first section are described the various

functional disturbances, and amongst these irregularities of action occupy a prominent place, and their analysis by means of polygraphic tracings is fully considered. The majority of the forms of functional disturbance, such as rapid action, slow action, dilatation, and various subjective phenomena, are traced to a nervous origin outside the heart, rather than to any intrinsic weakness of the heart. The next section deals with the borderland between functional disturbance and organic disease, in which is placed a condition like paroxysmal tachycardia arising in an apparently healthy heart, but leading eventually to all the signs of complete cardiac failure. The third section deals with organic heart disease, and the outstanding influence of rheumatic infection in its production is emphasised. In childhood it is the active and developing lesions which fail to be considered as contrasted with the effects of past carditis and of chronic degenerative changes in adult life. The nature and significance of the cardiac signs and symptoms are discussed, and the prognosis and treatment are to be determined by a careful consideration of these signs and symptoms rather than from any objective evidences of the existence of valvular lesions.

NOTES ON DENTAL SURGERY AND PATHOLOGY. By T. W. WIDDOWSON, L.D.S.(R.C.S.Eng.). (Interleaved with blank pages for the reader's own notes and drawings.) Illustrated; pp. xi + 345. Price 10s. 6d., 8vo. London: John Bale, Sons and Danielsson, Ltd., 1914.

This book, while intended primarily for the use of students preparing for examination, is also designed to serve as a work of reference for the practitioner. The author states that "the notes are a combination of his own observations and practical experience with a compilation from the standard works on dental surgery." The field of dental surgery and pathology is dealt with. Details of operative procedure are for the most part omitted. The subject of dental caries is discussed at length, especially from the histological and bacteriological standpoint. The varieties of fractures of the jaws are mentioned in some detail, together with a description of the different forms of splints, accompanied by illustrations of each. Throughout the book most of the illustrations are diagrammatic which the author considers the best for teaching purposes, and it is intended that the reader should add his own notes and sketches, for which purpose blank pages are interleaved. There is a full index to the volume.

ON PHARMACO-THERAPY AND PREVENTIVE INOCULATION, APPLIED TO PNEUMONIA IN THE AFRICAN NATIVE, WITH A DISCOURSE ON THE LOGICAL METHODS WHICH OUGHT TO BE EMPLOYED IN THE EVALUATION OF THERAPEUTIC AGENTS. By Sir ALMROTH E. WRIGHT, F.R.S. Price 4s. 6d. net, 8vo. London: Constable and Co., 1914.

This book consists of a report to the Witwatersrand Native Labour Association upon researches made under their auspices upon the treatment and prevention of pneumonia among African natives. The researches were of two kinds. In one is studied the influence of the drug introduced by Morgenroth—viz., ethylhydrocapreinhydrochlorate. Its effect upon the pneumococcus *in vitro* is compared with that of other antiseptics; the bactericidal effects of the blood serum of mice treated with the drug is compared with the effects of the serum of untreated mice; and the bactericidal and opsonic effects of the blood serum of normal and of pneumonic natives after the ingestion of the drug are compared with similar effects of blood serum drawn off before such treatment. The second part of the report is devoted to the study of (a) the treatment and (b) the prevention of pneumonia by inoculation with pneumococcal vaccines. In the latter research several thousand natives in various mines received protective inoculations, but every other man presenting himself was left uninoculated, so that a complete system of controls was established. The subsequent incidence of pneumonia, and the number of fatal cases in the two groups, were carefully noted. There is also a full discussion of the relative values of the statistical method, and of what the author calls the experimental method, in researches of this kind.

Proceedings of the Royal Society of Medicine.

SUPPLEMENT

(VOL. VIII, No. 2, DECEMBER, 1914).

NOTES ON BOOKS.

[*The purpose of these "Notes" is neither to praise nor to blame, but merely to draw attention to some of the new books and new editions which have been added to the Society's Library.*—ED.]

PHYSIOLOGIE NORMALE ET PATHOLOGIQUE DES REINS (Clinique des voies urinaires, Hôpital Necker). Par L. AMBARD. Diagrams and Illustrations; pp. iv + 332. Price 15 fr. Paris: F. Gittler, 1914.

A highly technical work representing the result of the author's researches at the Hôpital Necker in Paris, where he is the Chief of the Chemical Laboratory of the Urinary Clinic. He claims to have proved that the excretion of urea by the kidneys follows a rigorously mathematical formula, by departure from which he is enabled (by frequent analyses, thus avoiding the pitfalls spread by such fortuitous occurrences as the drinking of large quantities of liquid or increased diaphoresis from various causes) to estimate the degrees of functional activity of the kidneys. The author's method has been practised at the Hôpital Necker for the past three years, and it is claimed for it that it has proved itself superior to all others for diagnostic purposes.

L'APPENDICITE, ÉTUDE CLINIQUE ET CRITIQUE. Par LÉON BÉRARD et PAUL VIGNARD. Illustrated; pp. xii + 878. Price 18 francs. Paris: Masson et Cie., 1914.

The preface contains a brief historical and bibliographical survey of this subject, from which it appears that so long ago as 1759 a French surgeon, Mestivier, published an account of a case of appendicitis in the *Journal de Médecine, Chirurgie, et Pharmacie*, though probably in some measure out of deference to the traditional respect paid to the opinion of Dupuytren, who would not admit the relationship between perityphlitis and appendicitis, this relationship continued to be denied by all but the few until the publication of the researches of Fitz, of Boston, in 1886. In 1827 Melier, writing of diseases of the appendix, had said that, if it were possible to establish a certain diagnosis of such a lesion, one might conceive the possibility of being able to obtain relief by operative measures, though, considering the then dangers of surgical interference, the suggestion was not unreasonably disregarded. For a more detailed bibliography of the subject the reader is referred to the index annexed to

the treatise by Sprengel (Stuttgart, 1906). The work is divided into ten parts, embracing the anatomy and pathology of the appendix and neighbouring structures, and the clinical symptoms and complications of appendicitis, which latter are studied here at greater length, inasmuch as they are said to be somewhat neglected by other writers. The question of treatment is discussed in the light of the latest information derived from articles in the press and the transactions of the various medical societies and congresses. The work is embellished with 158 illustrations.

THE WHOLE ART OF BANDAGING. By THEKLA BOWSER, with an Introduction by JAMES CANTLIE, M.A., M.B., F.R.C.S. Illustrated; pp. xii + 108. Price 1s. net, small 8vo. London: John Bale, Sons and Danielsson, Ltd., 1914.

This booklet, intended for those who are learning the art of bandaging, describes the various uses to which the triangular and other bandages can be put, and is full of hints for emergencies. The author, for many years a nursing sister of the St. John Ambulance, claims that she has been enabled, by her experience in teaching bandaging, to detect and explain away some of those difficulties which her own pupils, and probably many others, are liable to encounter.

GAS POISONING IN MINING AND OTHER INDUSTRIES. By JOHN GLAISTER, M.D.Glas., D.P.H., Professor of Forensic Medicine and Public Health in the University of Glasgow, Senior Medico-legal Examiner in Crown Cases for Glasgow and Lanarkshire, and DAVID D. LOGAN, M.D.Glas., D.P.H., Surgeon to the Coltness Ironworks, Newmains. Illustrated; pp. xii + 471. Price 10s. 6d. net. Edinburgh: E. and S. Livingstone, 1914.

It has been said that while the nineteenth century was the era of the steam engine, the twentieth will be that of the gas engine; and with the extended use of gas in industrial occupations it is a fact that the number of victims of carbon monoxide poisoning already shows a decided increase. In these days of compensation for accidents, the subject of gas poisoning has assumed additional importance, yet there are few medical men who are competent from their own knowledge of this subject to testify as experts in medico-legal cases. The authors, each of whom from his own standpoint has had considerable experience of this speciality, attempt in this volume to focus within reasonable limits the present knowledge of the subject, which has met with comparatively scanty literary attention in this country. This compendium is intended to help practitioners of law as well as of medicine, and the more so since it includes a bibliography—mostly of Reports of Commissions and articles contributed to periodicals—extending over twelve pages.

ELEMENTS OF SURGICAL DIAGNOSIS. By Sir ALFRED PEARCE GOULD, K.C.V.O., M.S.Lond., F.R.C.S.Eng. Fourth Edition, revised and enlarged by the author with the assistance of ERIC PEARCE GOULD, M.A., M.Ch.Oxon., F.R.C.S.Eng. Illustrated; pp. xiv + 723. Price 10s. 6d., small 8vo. London: Cassell, 1914.

Sir Alfred Pearce Gould's well-known "Elements of Surgical Diagnosis" now appears in a fourth edition. In the revision of it he has been assisted by his son. Some new illustrations and plates of skiagrams have been added, and it has been brought completely up to date. This has necessitated an entire re-setting, and a greater variety of type has been used in order to facilitate reference. The arrangement of the matter is first general and then regional. The aim of this book is to enable the student or practitioner to approach any particular case from a scientific point of view and to prevent the reader from falling into any of those pitfalls that are caused by imperfect observations or unjustified generalisations.

FLIES IN RELATION TO DISEASE: NON-BLOODSUCKING FLIES. (Cambridge Public Health Series.) By G. S. GRAHAM-SMITH, M.D. Illustrated; pp. xvi + 389. Price 12s. 6d. net, 8vo. Cambridge: Cambridge University Press, 1914.

This book is intended to appeal to many classes of readers, entomologists, housewives, the man in the street, and above all to doctors. It gives information to all these classes, and, by a suitable arrangement of type, enables those who are unconcerned with technicalities to pass on to the next subject of general interest without anxiety as to having missed any vital point. The dangerous characteristics of the non-suctorial flies have received but scanty attention from the medical profession, perhaps because the iniquities of their suctorial cousins have been so prominently brought forward. The author presents a full account of the anatomy and physiology of the "Busy, curious, thirsty Fly," the friend of poets and the hero of nursery rhymes. The reader will learn all that is to be known about its humble, not to say degraded and filthy origin, and the really appalling fact that a well-fed domestic fly will deposit 224 times in twenty-two hours, the deposit being 179 times what the author calls "vomit," and 45 times faeces. He will also learn about the favourite promenades for the hairy-legged fly, ranging from the foulest human excreta and garbage of all kinds to our own foodstuffs, and will have brought before him strong evidence that non-suctorial flies are important agents in transmitting typhoid, summer diarrhoea, cholera, and many other diseases. If the poet had known he would never have written, "Freely welcome to my cup, could'st thou sip and sip it up." The author prophesies that we shall some day be aroused from our extraordinary supineness with regard to these enemies in our midst and attack them with method and vigour. He discusses fully what methods may be adopted, and describes the manner in which Nature attempts to limit their number by means of various parasitic diseases. The book concludes with twenty-four pages of bibliography.

MANUEL DE CYSTOSCOPIE. Préface par le Professeur F. LEGUEU (Clinique des voies urinaires, Hôpital Necker). Par E. PAPIN. Illustrated; pp. vi + 327. Price 15 fr. Paris: F. Gittler, 1914.

This is a manual of cystoscopy giving full details of the practical technique of that operation, but purposely omitting all considerations of the conditions and symptoms which make such measures necessary. It represents the course of elementary instruction given to students (there is a secondary and more advanced course) at the Hôpital Necker, in Paris, by the author, who is the chief of the Urinary Clinic. After describing the various forms of cystoscope and other necessary instruments and appliances, illustrations and photographs are given of the normal appearances and various pathological changes to be looked for in making the examination. Attention is then directed to the ureters and the method of ureteral catheterisation, followed by an explanation of the points to be derived from examination of the urine thus obtained. This is essentially a guide to the use of the cystoscope, and it is somewhat surprising to read in the introduction that it is the only work of its kind in the French language.

PRACTICAL NURSING: A TEXT-BOOK FOR NURSES. By ANNA C. MAXWELL and AMY E. POPE. Third edition. Illustrated; pp. xvi + 864. Price 7s. 6d. net. New York and London: G. P. Putnam's Sons, 1914.

A text-book of practical nursing for nurses by nurses, containing descriptions of the ordinary routine of bed-making, care and cleansing of the patient, and the more technical duties of administering baths, douches, and enemata; of catheterisation, lavage, gavage, and nasal feeding, the application of local medicaments and giving of medicines, and the preparation of patients for the various operations. There are also directions for bandaging and dressing wounds, and hints for the ordinary emergencies. Rather more ambitious in intention are the chapters on "Bacteriology," "The Symptoms and Practical Signs of Disease," and "A Synopsis of some of the more Important Diseases." There is also a short account of "Food and Infant Feeding," and six pages upon massage. An index is mentioned as among the contents, but finds no place in the volume.

A TEXT-BOOK OF INSANITY AND OTHER MENTAL DISEASES. By CHARLES A. MERCIER, M.D., F.R.C.P. Second edition. Pp. xx + 348. Price 7s. 6d. net. London: G. Allen and Unwin, Ltd., 1914.

This is the second edition of a work, published twelve years ago, which was primarily intended for the use of students of medicine as an introduction to the study of insanity, to give them a general notion of the subject without going into much detail, and incidentally to be of use to them in examinations. We are told in the Preface that the first edition had become the text-book in use in most of the universities. This enlarged edition, while still retaining its former purpose, is intended also for those, now much increased in number, who devote themselves temporarily or permanently to the special study of insanity. The bulk of the work consists of Part II, which embraces "The Forms, Types, and Kinds of Insanity," extending to just over 200 pages. There is no index.

THE SALVARSAN TREATMENT OF SYPHILIS IN PRIVATE PRACTICE, WITH SOME ACCOUNT OF THE MODERN METHODS OF DIAGNOSIS. By G. STOPFORD-TAYLOR and R. W. MCKENNA. Illustrated; pp. 92. Price 5s. net, Svo. London: W. Heinemann, 1914.

This gives a résumé of the conditions for which salvarsan should be administered, and points out fully all the practical details which should be attended to in its administration. The book commences with instructions as to the best practical way of demonstrating the presence of spirochaetes in syphilitic patients. For the Wassermann reaction they employ Fleming's modification of the reaction, using an alcoholic extract of guinea-pig's heart as an antigen, and note that the reaction may also occur in patients with leprosy or scarlet fever, and also shortly after an anaesthetic; as well as by syphilitics. They are strongly in favour of the intravenous method of administering salvarsan, and describe all the technical details to be attended to. All reference to neo-salvarsan is omitted; yet this drug has the advantage not only of being less toxic, but it can also be injected into the veins in a small quantity of saline without any elaborate preparations. They have found it necessary to deny the salvarsan treatment to only three patients out of 400. It is Ehrlich's opinion that there is no case yet on record in which a fatal issue can fairly be attributed to the use of salvarsan alone. The authors are of opinion that its use should always be combined with a weekly injection of grey oil for ten or twelve weeks.

DREAMS. By HENRI BERGSON; translated, with an Introduction, by EDWIN E. SLOSSON. Second Impression. Pp. 62. Price 2s. 6d. net. London: Fisher Unwin, 1914.

The theory advanced by the author is, in brief, that all dreams arise from stimulation of the special sense organs, and those of peripheral and visceral sensibility. But "the formative power of the materials furnished to the dream by the different senses, the power which converts into precise, determined objects the vague and indistinct sensations that the dreamer receives from his eyes, his ears, and the whole surface and interior of his body, is the memory." "The mechanism of the dream is the same as that of normal perception." In the waking state, when we perceive a real object, we merely see a sketch of it . . . which appeals to the complete memory, and this which by itself was either unconscious or simply in the thought state profits by the occasion to come out. In the waking state the memories aroused by a perception are always closely associated with our present situation, our present occupation, our present action. But in dreams we become *disinterested* in the present situation, in the present action—in short, in all which previously has guided memory. The result of a sensory stimulus during sleep is a crowd of phantom memories which aspire to fill themselves with colour, with sonority—in short, with materiality. "But the only ones that succeed are those which can assimilate themselves with the colour-dust that we perceive, the external and internal sensations that we catch, &c., and which, besides, respond to the effective tone of our general sensibility." "When this union is effected between the memory

and the sensation we have a dream." Dreams are incoherent because a peripheral sensation may excite very different memories which suit the same sensation. For instance, there may be in the field of vision a green spot with white points. This may suggest a lawn spangled with white flowers, or a billiard-table, or a host of other things. These different memory images, all capable of utilising the same sensation, chase after it. Sometimes they attain it one after the other, and so the billiard table becomes a lawn, and we watch these extraordinary transformations. The law that regulates the reappearance of memories in profound slumber may be very different. We know almost nothing of this profound slumber. The dreams that fill it are, as a general rule, the dreams which we forget. It is upon this profound slumber that psychology ought to direct its efforts, not only to study the mechanism of unconscious memory, but to examine the more mysterious phenomena which are raised by "psychical research." If telepathy influences our dreams, it is quite likely that in this profound slumber it would have the greatest chance to manifest itself. We have attempted very briefly to sketch the main points of the author's thesis, but for his argument we must refer readers to the book itself.

CHEMISTRY AND ITS BORDERLAND. By ALFRED W. STEWART, D.Sc. With 11 illustrations and 2 plates; pp. x + 314. Price 5s. net. London: Longmans, Green and Co., 1914.

This is an account of some of the recent developments in chemistry, written in simple language, and free from chemical symbols, for non-technical readers. The book may be divided into four sections: In the first (Chapters I-III) an attempt has been made to show how chemistry has internally split into various subdivisions, while, simultaneously, it has expanded into other fields, and has lent the aid of its methods to other sciences and to industry. The second section (Chapters IV-VII) contains explanations of various chemical subjects (*inter alia*, the colloids and the spectroscope), each of which has developed on more or less independent lines. The next section (Chapters VIII-XII) deals with radium, niton, transmutation, and the various problems of the structure of matter. The final section (Chapters XIII-XV) is intended to give some insight into the methods and organisation of modern research work, both on the technical and the human side; and a few selected instances are given of investigations which at first sight appeared to be of merely academic interest, but which have actually laid the foundations of far-extending industries which provide employment for thousands of workers.

THE PROGRESS OF SCIENTIFIC CHEMISTRY IN OUR OWN TIMES, WITH BIOGRAPHICAL NOTICES. By Sir WILLIAM A. TILDEN, F.R.S. Second Edition. Pp. xii + 366. Price 7s. 6d. net. London: Longmans, Green and Co., 1913.

This is the second edition of a work originally intended to give to students and general readers a clear statement of the successive steps which have led to the system of theory generally accepted by chemists at the present day. Preserving the fundamental idea of the earlier edition, it commences with a period coincident with the accession of Queen Victoria; when Liebig's teaching was beginning to be felt; though in a cursory introductory survey one is reminded that scientific chemistry dates back to Robert Boyle (1627-1691), before whose time what was then called chemistry or alchemy was but a confused mass of observations, largely erroneous, and of hypotheses, mainly groundless, the two principal objects of inquiry being the production of gold and the elixir of life. In 1837 Liebig was at the height of his fame, having already inaugurated the systematisation of organic chemistry, which thus for the first time came to be regarded as "the chemistry of compound radicals." There is a chapter on radio-activity, and a chronological table of important events in the history of chemical progress.

OUTLINES OF ZOOLOGY. By J. ARTHUR THOMSON, M.A., I.L.D. Sixth Edition, Revised. 424 illustrations; pp. xxii + 855. Price 12s. 6d. net. Edinburgh and London: Henry Frowde and Hodder and Stoughton, 1914.

This is the sixth edition of a work intended for the use of students of zoology in the lecture room, museum, and laboratory. The first part contains chapters on Physiology, Morphology, Embryology, and Palæontology; following which the main part of the volume is devoted to a description of the Invertebrates and Vertebrates; and the two concluding chapters to the Geographical Distribution of Animals and the Theory of Evolution. There is an earlier résumé of the Doctrine of Descent, and a final appendix containing a bibliographical survey of works on the various branches of zoology mentioned above. It is copiously illustrated.

PSYCHO-PATHOLOGY OF EVERYDAY LIFE. By Professor Dr. SIGISMUND FREUD, LL.D. Authorized English Translation, with Introduction, by A. A. BRILL, Ph.B., M.D. Pp. 342. Price 12s. 6d. net. London: Fisher Unwin, 1914.

This volume is a translation of the fourth German edition of Professor Freud's well-known work. The translator, Dr. A. A. Brill, Chief of the Clinic of Psychiatry, Columbia University, who has recently published a translation of "The Interpretation of Dreams" by the same author, reminds us in his preface that Professor Freud, while tracing back from the abnormal to the normal state of mind, found "how faint the line of demarcation was between the normal and neurotic person, and that the psycho-pathologic mechanisms so glaringly observed in the psycho-neuroses and psychoses could usually be demonstrated in a lesser degree in normal persons." The psycho-pathology of everyday life is a study of the common faulty actions of daily experience, such as the forgetting of names and the order of words, the mistakes in speech, reading and writing, erroneously carried out actions, and forgetting of impressions and resolutions. Other chapters deal with Errors, Determinism, and Superstitious Beliefs. This study is complementary to Freud's other works, and in its observation of the complex problems of human nature, claims to demonstrate the link between normal and abnormal mental states. There are numerous interesting cases and anecdotes in this book. Some of these have been introduced by the translator in place of the original cases which linguistic difficulties would have rendered incomprehensible to English readers. It is worth noting, in view of much criticism that has been levelled against Freud's work, that he himself makes no claim that the *forgetting*—e.g., of proper names—may not be of a simple nature, or that it necessarily carries with it an indication of unconscious mental processes. On the other hand, Freud gives strong grounds, in this work, for his belief that most instances of faulty memory and action are "motivated" by the mechanism of repression.

THE CURVES OF LIFE; BEING AN ACCOUNT OF SPIRAL FORMATIONS AND THEIR APPLICATION TO GROWTH IN NATURE, TO SCIENCE AND TO ART; WITH SPECIAL REFERENCE TO THE MANUSCRIPTS OF LEONARDO DA VINCI. By THEODORE ANDREA COOK, M.A., F.S.A. Pp. xxx + 419. Price 12s. 6d. net. London: Constable and Co., 1914.

This work is a vast accumulation of records of what the author calls spirality, that is, the occurrence of spiral formations in Nature and Art, illustrated by a certain amount of geometrical and mathematical references. It is an inexhaustible subject, and one in which, as might be anticipated, generalisation cannot go hand in hand with observation. Very special reference is made to Art, and above all to the manuscripts of Leonardo da Vinci. Excluding occasional references to spiral-shaped micro-organisms, the part that concerns the medical profession is included in one short chapter, the thirteenth, the heading of which is as follows: "Natural objects do not consciously produce spirals—Deviation from mechanical accuracy—Spiral formation of upper end of thigh-bone—Growth and change—Corresponding structures in birds and mammals—Conical spiral of cochlea—Spiral formations: Umbilical cord, skin, muscular fibres of heart, tendo Achillis, the humerus (torsion), ribs, joints, wings and feathers, eggs, animalculæ." There are several plates and numerous illustrations in the text.

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SUPPLEMENT

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NOTES ON BOOKS.

[*The purpose of these "Notes" is neither to praise nor to blame, but merely to draw attention to some of the new books and new editions which have been added to the Society's Library.*—Ed.]

THE LETTSOMIAN LECTURES ON DYSENTERY. Delivered before the Medical Society of London, 1914. By F. M. SANDWITH, M.D., F.R.C.P. Pp. 72. London: *The Lancet*, 1914.

These three lectures deal with the history of dysentery, and give a practical account of the present state of our knowledge as to its pathology and treatment. In the historical portion the marked association of the disease with famines and wars is well brought out. In the American Civil War there were 37,794 deaths from dysentery and diarrhoea, a mortality of nearly 30 per cent. of total deaths, and in the South African War there were 38,108 cases with 1,342 deaths—i.e., 3·5 per cent. It is only in the last twenty years that it has been generally admitted that dysentery is a water-borne disease. It is now recognised that the *endemic* type of disease is associated with the *Entamoeba histolytica*, and that this is the form which gives rise to hepatic abscesses. The clinical and experimental evidence of this is fully set out. The history is given of the various treatments which have been advocated from time to time, including the original use of ipecacuanha, later followed by the use of the de-emetised drug, and, finally, last year the proof by Sir Leonard Rogers of the extraordinary value of emetine hydrochloride as a curative agent. The *epidemic*, which is the type that is usually met with in wars, famine, and asylums, is bacillary in origin, Shiga's bacillus being a common cause; the clinical distinction of this form from the *amoebic* type is still obscure, and the efficacy of emetine in its treatment is much less marked. Such cases do better with magnesium sulphate, sulphur, cyllin, and antidysenteric serum. The author lays great stress on the spread of infection by carriers—i.e., people in perfect health who yet are passing faeces infected with dysentery. He refers to several cases where such patients, especially when their duties led them to handle food, had infected several members in a household. The danger of flies in spreading infection is now well recognised; still by far the commonest medium of infection is soiled fingers.

A TREATISE ON DISEASES OF THE RECTUM AND ANUS. By A. B. COOKE, A.M., M.D. Pp. xvi + 619. Price 28s. 6d. net. Philadelphia: F. A. Davis Company; London: Stanley Phillips, 23, Creighton Road, Queen's Park, N.W., 1914.

The first sixteen chapters, embracing the more ordinary and less severe diseases of the anus and rectum, were written about twenty years ago by Dr. Cooke, who, having revised them recently, assumed the editorship of this treatise. The remaining half of the volume

is supplied by various contributors, each of whom is responsible for his section of what, in the whole, forms a system of proctology. It is claimed that the result represents the most authoritative teaching upon the subject, and the work contains numerous illustrations. Chapter XXI ("Extirpation of the Rectum") is prefaced by a brief historical résumé of the evolution of this operation.

MEDICAL DIAGNOSIS. By ARTHUR LATHAM, M.A., M.D.Oxon., F.R.C.P.Lond., and JAMES TORRENS, M.B., B.S.Lond., M.R.C.P.Lond. Illustrated; pp. xii + 641. Price 15s. net. London: J. and A. Churchill, 1915.

In the preface we are informed that there have been repeated requests from both students and practitioners for a book which contains, in concise and accessible form, the clinical information, together with the more ordinary laboratory details necessary for the purpose of making a scientific diagnosis in medical cases. And, since the information it contains is equally complete, simple in arrangement, and easily referred to, this volume appears adequately to supply the predicated want. As a good specimen of the method which has been adopted by the authors may be instanced the article upon anthrax, the symptoms of the three varieties of which, tabulated as (1) malignant pustule, acquired by inoculation, (2) wool-sorter's disease, acquired by inhalation, and (3) splenic fever, acquired by ingestion, are separately described; to which are added an explanation of the differential diagnosis between the two latter forms, and suggestions for the examination of the blood and urine for the bacillus, a photographic illustration of which is given. The whole article, illustration included, occupies less than two pages, an example of the concise precision which characterises the authors' scheme. The volume embraces the whole practice of medicine in a little over 600 pages, commencing with the specific infective and tropical diseases, and proceeding to diseases of the blood, the cardio-vascular system, the respiratory and alimentary tracts, the nervous system, and finally to those of the skin. The work is replete with bacteriological photomicrographs, cardiograms, temperature charts, and plates of urinary deposits; while the localisation of the functions of the brain and spinal cord is made clear by means of several original and instructive diagrams which form a valuable addition to the letterpress. There is a useful index.

SCIENCE AND RELIGION. By Seven Men of Science: Sir OLIVER LODGE, Professor J. A. FLEMING, Professor W. B. BOTTOMLEY, Professor EDWARD HULL, Dr. J. A. HARKER, Professor SIMS WOODHEAD, Professor SILVANUS THOMPSON. Portraits. Price 1s. net. London: W. A. Hammond, 1914.

The views of seven representative men of science are contained in this little volume, where one may read, in concise and easily understood language, the convictions of some of the leaders of modern scientific thought. Professors of geology, biology, psychology, and electricity, one and all subscribe to the declaration that the materialism of Haeckel and the agnosticism of Huxley have been abandoned by them; and that the physical energy of matter, the vital energy of organic life, and the psychical energy of the intellect are to be regarded as the products of Evolution, emanating from that "infinite and eternal energy, from which," according to Spencer, "all things proceed," and leading (perchance) to a greater perfection of mind and matter in the ages to come. This last stage of evolution, not yet within the compass of science, is that of spiritual energy, spiritual vitality, the survival of existence, immortality. "I tell you," says Sir Oliver Lodge, "with all the strength of conviction I can muster, that we do persist (after death); that people still take an interest in what is going on, that they still help us, that they know far more about things than we do, and that they are able from time to time to communicate" (page 25). "My conclusion is that survival of existence is scientifically provable by careful scientific investigation" (page 27).

LECTURES ON HOUSING. The Warburton Lectures for 1914. By B. SEEBOHM ROWNTREE and A. C. PIGOU. Pp. 70. Price 1s. 6d. net, 8vo. Manchester: University Press, 1914.

These lectures were delivered under the provisions of the Warburton Trust at Manchester; that by Mr. Rowntree on November 27, 1913, and that by Professor Pigou on January 19, 1914. The former deals very fully with the housing problem, and as measures for solving it advocates the expansion of the minimum wage policy, the decasualisation of labour, the compulsion of town planning, with a restriction on the number of houses per acre, the provision of adequate transit facilities in all towns, and making it the statutory duty of all towns to see that their inhabitants are satisfactorily housed. Professor Pigou discusses the question from the aspect that it is the duty of a civilised state to lay down certain minimum conditions in every department of life, below which it refuses to allow any of its free citizens to fall.

PHYSICS: AN ELEMENTARY TEXT-BOOK FOR UNIVERSITY CLASSES. By C. G. KNOTT, D.Sc.Edin., F.R.S.E. Third edition. Pp. 370. Price 7s. 6d. net, small 8vo. London and Edinburgh: W. and R. Chambers, Ltd., 1913.

In this new edition the work has been carefully revised and has been amplified, a new chapter having been added on the electron theory and radio-activity. In other lines of physical research, also, recent advances are dealt with.

DENTAL MICROSCOPY. By A. HOPEWELL-SMITH, L.R.C.P.Lond., M.R.C.S.Eng., L.D.S.Eng. Third edition, revised and enlarged. Illustrated; pp. xxxiv + 216. Price 15s. net. London: John Bale, Sons and Danielsson, Ltd., 1914.

The third edition of this handbook remains substantially the same as the previous one, the author considering that "the Art and Science of Dental Microscopy has not advanced very greatly during the last fifteen years." The chapter on staining has been considerably enlarged to include the recent methods of Mummery and others, but as the author does not recognise the epoch-making results of the above-named investigator's work, no mention is made of the nerves of the dentine, and, although the plates have been entirely re-drawn, no new ones have been added depicting the results which led Mr. Mummery to his conclusions. Several of the original illustrations in the text have been omitted from this edition, chiefly those dealing with histological and bacteriological apparatus.

PRINCIPLES AND PRACTICE OF OPERATIVE DENTISTRY. By JOHN SAYRE MARSHALL. Fourth edition. Illustrated; pp. xxvii + 698. Price 21s. net, 8vo. Philadelphia and London: J. B. Lippincott Co., 1914.

In the fourth edition of this work is presented a comprehensive text-book of the science and art of dental surgery, excluding, however, the subject of irregularities of the teeth, which the author considers a separate speciality. Recent microscopical researches are fully referred to in the chapters on the histology of the dental tissues, including Mummery's investigations demonstrating the existence of nerve-fibres in the dentine. This section of the book is supplied with reproductions of photomicrographs of the various dental tissues and of the process of development of the teeth. The important subject of the prevention of dental caries has received special attention, especially with regard to the influence of the various foods, and the observations of Gies, Pickerill, and Sim Wallace in this connexion are all enumerated. The introduction of nitrous oxide and oxygen "analgesia," or, as the author prefers to call it, "peripheral anæsthesia," is referred to, and a caution added as to the possible dangers of the indiscriminate use of this method. A chapter on electro-therapeutics has been added, dealing with the uses of the galvanic and faradic currents in dentistry, especially the application of the former in morbid conditions of the pulp and periodontal membrane, and as a means of diagnosis in determining the vitality of the pulp. Apart from these additions, the general plan and details of the book remain the same as in the previous editions.

PASTEUR AND AFTER PASTEUR. By STEPHEN PAGET, F.R.C.S. Pp. xiv + 152. Price 3s. 6d., small 8vo. London: Adam and Charles Black, 1914.

When the grave closed over the mortal remains of Louis Pasteur, Nature lost a friend and Science mourned a genius. Pasteur's discovery of molecular dissymmetry, leading as it did to the elucidation of the problem of fermentation, laid the foundation of all his future success. The irrefutable proof that fermentation, decomposition, and putrefaction are the results, not of any creative constituent of the air itself, but of bacteria derived from extraneous sources, enabled him, in 1864, to expound the germ theory in one memorable phrase: "*La vie, c'est le germe, et le germe c'est la vie.*" Darwin had said: "The origin of life! As well might one argue upon the origin of matter," and Pasteur was of the same opinion. He quietly proved a negative, by showing that a liquid really sterile, exposed to air really sterile, will remain sterile; the old theory of spontaneous generation was henceforth dead and buried. The result of his studies in fermentation had enabled him to revolutionise the manufacture of wine, beer, and vinegar; he had saved the silk trade by the discovery of the cause of silk-worm disease; and he thereupon proceeded to the investigation of anthrax, to which 5 per cent. of the cattle and 10 per cent. of the sheep in France had yearly fallen victims. Thence he turned to the study of *rouget* (swine disease) and fowl cholera, in the course of which latter research he advanced from the making of cultures to their attenuation, thus evolving the principle of immunisation which has already preserved the lives of myriads of the human race, and has made the name of Pasteur immortal. Finally he devoted himself to rabies, the preventive treatment of which was his last personal achievement. "*Si j'avais l'honneur d'être chirurgien,*" was his one lament, as if he had not done enough; though, in fact, it was he who had cleared the ground for Lister and others, and had made possible the protective treatment of tuberculosis, diphtheria, cholera, plague, typhoid fever, and malaria. Everyone should read Radot's "*Vie de Pasteur,*" in French if possible, to which this little volume, the first of a series of medical history manuals, forms a fitting introduction; and those who would become imbued with the spirit of the master who is revered by not a few as the greatest scientific genius of all time, should visit his tomb in the chapel of the institute in Paris which bears his name, on whose walls, decorated with hops, vines, mulberry-leaves, and the figures of cattle, sheep, dogs, and poultry, may be read the names of his great discoveries, and over which are watching the four white angels of Faith, Hope, Charity, and Science. Louis Pasteur died, crucifix in hand, beloved of all men; the very animals, could they speak, would bless his memory.

QUAIN'S ELEMENTS OF ANATOMY. Editors: Sir EDWARD ALBERT SCHAFER, LL.D., F.R.S., JOHNSON SYMINGTON, M.D., F.R.S., and THOMAS HASTIE BRUCE, M.D. Eleventh edition. In four volumes. Vol. IV, Part 1: "Osteology and Arthrology," by T. H. BRYCE. Illustrated; pp. viii + 329. Price 12s. 6d. net, large 8vo. London: Longmans, Green and Co., 1915.

This first part of the fourth volume of "Quain's Anatomy" forms a text-book complete in itself. The order of description in the first part dealing with osteology is that of the skeleton and bones generally, vertebral column, thorax, bones of the head, upper limb and lower limb, concluding with morphology of the limbs. The second half, arthrology, is arranged under articulations in general, followed by those of the trunk and head, upper limb, pelvis and lower limb. The Basle nomenclature is very largely employed; the English equivalents are principally used in the text, and the Latin forms given on the figures. The woodcuts of the bones that appeared in the tenth edition have been reproduced; some fresh figures have been added in the osteology section. A new feature in the section on arthrology is a set of new coloured plates. Another fresh feature in the work is the addition of a bibliographical appendix of the more recent literature on osteology, which is very extensive, consisting principally of brief papers and annotations.

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NOTES ON BOOKS.

[The purpose of these "Notes" is neither to praise nor to blame, but merely to draw attention to some of the new books and new editions which have been added to the Society's Library.—ED.]

A CORRECTION.

PRACTICAL NURSING : A TEXT-BOOK FOR NURSES. By ANNA C. MAXWELL and AMY E. POPE.
Third edition. Illustrated; pp. xvi + 864. Price 7s. 6d. net. New York and London : G. P. Putnam's Sons, 1914.

In our note on this book we referred to the absence of an index, but the publishers inform us that an imperfect copy had been accidentally sent to us, and we have now received a copy containing an apparently adequate index of some eight pages.

SEROLOGY OF NERVOUS AND MENTAL DISEASES. By D. M. KAPLAN, M.D. Pp. 346.
Price 15s. net. Philadelphia and London : W. B. Saunders and Co., 1914.

From the preface we learn that there is no American work covering the subject of the serology of nervous and mental diseases, and that a collection of the articles which have appeared in various medical periodicals is a serious requirement. Lumbar puncture with the object of obtaining cerebrospinal fluid, and its examination as an aid to diagnosis, is nowadays a frequent procedure; and the first part of this volume contains an exposition of the technology of the operation and the interpretation to be placed upon the chemical and morphological findings. The chapter on the technique of the Wassermann reaction concludes with the author's opinion, of which, as that of an experienced serologist, due notice should be taken, that "the chief function of the laboratory worker is not so much to detect every luetic subject as to protect the non-syphilitic individual from a wrong diagnosis and useless treatment" (p. 82); and, with this object in view, he urges that "when submitting a serum for analysis, it is important, in order to obtain an unbiased opinion from the laboratory, to withhold the clinical findings in the case" (p. 81). Parts II and III are devoted to the serology of nervous and mental diseases of syphilitic and non-syphilitic origin respectively, and Part IV to the therapeutical use of salvarsan. There are several illustrations demonstrating the technique of lumbar and veni-puncture, and others of various apparatus, &c.; and the volume concludes with a useful bibliography extending to 70 pages, and an index of contents.

ANÆMIA AND RESUSCITATION: AN EXPERIMENTAL AND CLINICAL RESEARCH. By GEORGE W. CRILE. Pp. xvi + 305. Price 21s. net. New York and London: D. Appleton and Co., 1914.

From the preface we learn with satisfaction that it has seemed best to the author to publish in detail the experiments upon anæmia and resuscitation which have been conducted in his laboratory, so that other workers may be saved unnecessary repetition. These experiments comprised the systematic investigation of the comparative effects of total anæmia upon different organs and tissues, and the extent of duration of that condition which these will respectively endure; whence the author has been led to the conclusion that such power of endurance is in (inverse) proportion to the delicacy of the function of the viscus or tissue involved (p. 250). We are reminded in the preface that, since the continued normal action of the heart and lungs is dependent upon the activity of the brain, the presence or absence, as well as the degree in duration of anæmia of the latter organ, decides the possibility of resuscitation; and also that it has not been sufficiently appreciated that, in regard to the resuscitation of the body as a whole, the greatest and most essential difficulty is to overcome the anæmia of the brain. The technique of the various methods of heart resuscitation with this object is given in detail; of which it has been found that the most efficient means of re-establishing the cerebral circulation is by the use of saline-adrenalin infusion towards the heart, combined with rhythmical pressure upon the thorax. There is a useful bibliography.

BLOOD-PRESSURE: ITS CLINICAL APPLICATIONS. By GEORGE WILLIAM NORRIS, A.B., M.D. Pp. viii + 371. Price 12s. 6d. net. Philadelphia and New York: Lea and Febiger, 1914.

The author's endeavour has been to present in a condensed and practical form the subject of blood-pressure, much of the literature of which is to be found scattered among the medical periodicals of various countries. Having described the physiology of normal human blood-pressure and the definitions which are generally accepted (the term "mean pressure" seems to be used by authors in different senses), he proceeds to its estimation by various instruments and methods. Parenthetically it is interesting to note that the first exact measurements of blood-pressure were published as long ago as 1733 by the Rev. Dr. Stephen Hales in his "Statical Essays"; an author whose philosophical ingenuity designed a system of ventilation, and whose clerical and quasi-medical knowledge found expression in "A Friendly Admonition against Brandy," which, he says, "coagulates and thickens the blood, and contracts the narrow vessels," &c. The variations of blood-pressure in the infectious diseases, in conditions consequent upon the exhibition of poisonous substances (e.g., lead, morphine), and in diseases of the nervous system, are described in the chapters following, one of which refers to the effects of drugs and glandular extracts upon the circulation. Chapter XVII treats of blood-pressure in surgery and obstetrics, and commences with the suggestion that "readings should be made in all cases in which anæsthetics or surgical procedures are employed, both before, and if possible during, as well as after the operation. Arterial hypertension will often indicate the presence of renal disease, when the routine urine examination fails to reveal it."

ARTIFICIAL PARTHENOGENESIS AND FERTILISATION. By JACQUES LOEB. Pp. x + 312. Price 10s. net, 8vo. Illinois: University of Chicago Press, 1913.

This is a supplemented and revised edition of a work, published in German and translated into English by King, in 1909, containing an analysis of the mechanism by which the spermatozoon causes the development of the egg; which analysis has been made possible by the discovery of the power to imitate the action of the spermatozoon by physico-chemical means—i.e., artificial parthenogenesis. Whereas the unfertilised egg dies in a comparatively short time, the fertilized egg lives indefinitely, since it gives rise not only to an individual, but may produce an endless series of generations. The act of fertilisation is, so far, the only known means by which the natural death of a cell can be prevented, and experiments on the mechanism of fertilisation are, in reality, efforts to determine the causes of the prolongation

of cell life. The effects of the spermatozoon upon the egg are both developmental and (paternally) hereditary, of which the developmental effect can be produced upon the egg of one animal by the spermatozoon of quite different species, but end only in the production of the original type of the egg, not the paternal type of the spermatozoon. It is to the study of this developmental effect of the spermatozoon, or rather of the physico-chemical forces which are known to be substituted for the spermatozoon—i.e., artificial parthenogenesis—that this work is devoted. The process by which the forces of hypertonic sea-water were proved to be an effective substitute for the spermatozoon is described in detail, together with the author's later discoveries as to the causes of the formation of the vitelline (fertilisation) membrane, which is the essential step towards development.

THE EARLY DIAGNOSIS OF HEART FAILURE, AND OTHER ESSAYS ON THE HEART AND CIRCULATION. By T. STACEY WILSON, M.D.Edin., F.R.C.P.Lond., B.Sc.Edin. Illustrated: pp. xx + 617. Price 12s. 6d. net, 8vo. London: Smith, Elder and Co., 1915.

This book of nearly 600 pages consists of a number of essays, written during the last twenty years, dealing chiefly with heart failure; and they have especial reference to the diagnosis of this condition both by clinical methods and by the observation of symptoms. The subject is discussed in very much more detail than is possible in the ordinary text-book. The first essay occupies one quarter of the book, and is devoted to the early diagnosis of heart failure at different periods of life, and in different conditions of the heart's muscular substance. Other essays have reference (a) to varying positions of the diaphragm, as guides to the condition; (b) to variations in the hepatic dullness as an index of the heart's capabilities; (c) to overstrain of the heart; (d) to displacement of the heart under varying conditions; and (e) to anæmia and pallor as related to heart failure. One essay is largely devoted to a study of the causation of the systolic pulmonary murmur of anæmia; another to the so-called third sound of the heart; and another to a case of arrhythmia, which bears strongly on the venous pulse and the action of the auricles. The essays raise extremely important questions, and will be of great interest to anyone who has had a little experience in the study of cardiac cases. The author does not discuss the treatment of heart failure. The book is very fully illustrated by diagrams and photographic plates of the results of percussion of the heart, lungs, and liver, and by tracings of the arterial and venous pulses and of the heart's beat.

A MEDICAL DICTIONARY FOR NURSES. By AMY E. POPE. Pp. 288. Price 7s. 6d. net. New York and London: G. P. Putnam's Sons, 1914.

The purpose of this book is to provide a medical dictionary containing a detailed definition of the words and terms which are of special importance to nurses. It does not profess to contain all those which are usually included in medical lexicons, but it is contended that those which are omitted are not likely to be looked for or commonly met with by nurses. A list of the abbreviations usually employed in prescriptions, with an explanation of their respective meanings; the chemical symbols of the commoner compounds and a table of the elements; another of the poisons, with their symptoms and antidotes; a descriptive list of the prefixes and suffixes attached to medical terms; a comparison of the readings of Centigrade and Fahrenheit, and tables of weights and measures are appended; and the contents of the volume are completed by a summary of the average composition of common American food-products. The compiler is already known, more especially in America, as the author of several elementary books for nurses, and her experience of teaching enables her to make judicious choice of the words and subjects which are most likely to present difficulties to nurses in general.

SQUIRE'S POCKET COMPANION TO THE BRITISH PHARMACOPOEIA. By PETER WYATT SQUIRE. Second edition; pp. xvi + 1040. Price 10s. 6d. net. London: J. and A. Churchill, 1915.

The previous edition of Squire's Pocket Companion, which was published in 1904, arose out of the need for a more handy volume than the original Squire's Companion, which had

attained great bulk. It was therefore thought advisable to publish two separate books, of which the smaller Pocket Companion gives information specially suited to the practitioner and dispenser on such matters as commonly arise in the ordinary course of prescribing and dispensing; while the larger Companion combines the information embodied in the smaller work, with notes on improved pharmaceutical processes, criticisms of official tests, &c. The alphabetical arrangement has the advantage of easy reference without constant recourse to the index; and the "Prescribing Notes," which have been entirely revised and considerably enlarged, form a special feature of the present edition. Doses are given in both the Imperial and Metric systems, and in the case of toxic drugs the maximum single and daily dose is noted, together with selected formulas from the pharmacopœias of foreign countries and of the London hospitals. Each monograph contains a description of the drug to which it refers, with the usual method of preparing it, the official and not-official preparations, its incompatibles and antidotes, and the changes (if any) in the new British Pharmacopœia, which are indicated by the words New, Altered, or Modified, in brackets. A special chapter has been written upon the Therapeutical Agents of Microbial Origin (antitoxins, serums, vaccines, &c.) by R. Tanner Hewlett, Professor of Bacteriology in the University of London; and a list of the spas of Europe, classified therapeutically, and a general index, complete this pocket companion.

THE EXTRA PHARMACOPŒIA OF MARTINDALE AND WESTCOTT. By W. HARRISON MARTINDALE, Ph.D., F.C.S., and W. WYNN WESTCOTT, M.D.Lond., D.P.H. Volume I, revised; pp. xl + 1113. Price 14s. net. London: H. K. Lewis, 1915.

The sixteenth edition of the Extra Pharmacopœia would need little introduction to the medical profession were it not necessary to direct attention to the importance of the additions and alterations which have been made, while the general characteristics of the last edition have been retained. The first volume includes everything which the physician and pharmacist are likely to require for immediate reference on therapeutical matters; and at the same time that all material superseded by the most modern research has been omitted, over 2,000 abstracts from recent issues of the scientific journals of the world have been added. In order to bring the work into line with the New British Pharmacopœia, a synopsis of the changes in the latter, indicating the additions, deletions, and alterations, has been provided, the doses being given in both the Imperial and Metric systems. Besides a much enlarged account of the therapy of vaccines and antitoxins, and a chapter on animal organo-therapy (animal glands and tissues, and their preparations), special attention may be drawn to the information given on the subjects of the metallic colloids, kataphoresis, and radiology; while the supplementary list of drugs affords many details of the more out-of-the-way *Materia Medica*.

THE EXTRA PHARMACOPŒIA OF MARTINDALE AND WESTCOTT. By W. HARRISON MARTINDALE, Ph.D., F.C.S., and W. WYNN WESTCOTT, M.B.Lond., D.P.H. Volume II, revised; pp. viii + 469. Price 7s. net. London: H. K. Lewis, 1915.

The second volume of this, the sixteenth edition of the Extra Pharmacopœia, provides the physician with directions for the examination of the urine, blood, sputum, &c., for pathological metabolic products; and will be consulted by the pharmacist, chemist and analyst to determine the latest chemical and pharmacological methods of assaying drugs, chemicals, and organo-therapeutical medicaments. Herein may also be found information upon the sterilisation of solutions and utensils, and upon the standardisation of disinfectants and antiseptics, and their carbolic coefficients. A summary is given of the Report of the Parliamentary Committee upon Proprietary Medicines, with the ingredients of each of the latter, and a list of the European spas, and the analysis and therapeutical properties of their waters; while that portion of the work which is devoted to bacteriological and clinical notes upon special diseases also includes cancer, syphilis, and tuberculosis, and conveys information that should interest every medical practitioner.

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SUPPLEMENT

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NOTES ON BOOKS.

[The purpose of these "Notes" is neither to praise nor to blame, but merely to draw attention to some of the new books and new editions which have been added to the Society's Library.—ED.]

AN INDEX OF FIRST-AID. By J. M. CARVELL, M.R.C.S., L.S.A.Lond. Illustrated. Price 1s. net. London: John Bale, Sons and Danielsson, Ltd., 1915.

This vade-mecum for the ambulance worker and those anxious to gain some knowledge of first-aid to injured persons provides an instant guide in emergencies by reason of its alphabetical arrangement. It contains some diagrams of the various knots used in ambulance work, and the ruled interleaves afford an opportunity for the addition of manuscript notes.

STRANGEWAY'S VETERINARY ANATOMY. Ninth edition. Illustrated. Price 24s. net. Edinburgh and London: W. Green and Son, 1915.

This is the ninth edition of a work dealing primarily with the veterinary anatomy of the horse, which is taken as the type of all the domesticated animals, deviations from which type constitute the comparative anatomy of the subject. The work contains chapters on the bones, joints, muscles, viscera, vessels, nerves, organs of sense, and embryology, the last part of each of which chapters is devoted to a description of the differences which exist between the anatomy of the horse and that of the various other domesticated animals—i.e., the Ruminantia, Omnivora, Carnivora, Rodentia, and Aves. There are numerous illustrations and an index.

THE YEAR-BOOK OF OPEN-AIR SCHOOLS AND CHILDREN'S SANATORIA. Edited by T. N. KELYNACK, M.D. Volume I. Illustrated; pp. xxxii + 444. Price 7s. 6d. net. London: John Bale, Sons and Danielsson, Ltd., 1915.

This is the first issue of a year-book, new in design, and object, which the promoters trust will become an annual publication useful to all medico-educational workers. The opening pages are devoted to an editorial review, and this is followed by many original communications, contributed by medical men and women, architects, and others, including an article on "The Scouts and the Nation," by Sir Robert S. S. Baden-Powell. Thus the scope of the publication appeals to a wide circle of readers. Other features embrace "Clinical Surveys," "Schemes for Open-air Education and Treatment," a long list of sanatoria and other institutions designed for the treatment of children, and much official information. The volume contains many illustrations, emphasising the teaching of the text, and is fully indexed.

EVOLUTION AND DISEASE. By J. T. C. NASH, M.D. Pp. viii + 73. Price 3s. 6d. net. Bristol: John Wright and Sons, Ltd., 1915.

This book is the outcome of the Chadwick Lectures, delivered by the author in 1913. The first three chapters are briefly historical in the matter of records of mediaeval epidemics, and, as the author points out, they are necessarily brief, inasmuch as the records in question are wonderfully uninformative and meagre, "even to the extent of a bare chronology in most instances." In the sixteen chapters of which the book consists many subjects are dealt with, upon which original views are expressed by the author. In the chapter upon "Insanitation, an Evolutionary Factor in Epidemics," he traces how dense overcrowding led to the production and maintenance of filth conditions, constituting an environment in which epidemics of disease were continually recurring. These conditions prevailed in the large towns only some sixty or seventy years ago. In this connexion he refers to typhus fever, epidemics of which were of common occurrence, and attributes the present absence of the disease to the "rigorous application of powers for preventing overcrowding," and to the prevalence of personal and domestic cleanliness. Among other chapters which may be mentioned are those on "Heredity and Disease," the "Declension of Phthisis," the "Evolution of Disease and Disease Germs," the "Evolution of Sanitation," and "War as a Factor in the Evolution of Epidemics," the latter having an especial bearing upon the campaign at present in progress. There is no index.

THE PHILOSOPHY OF CHANGE: A STUDY OF THE FUNDAMENTAL PRINCIPLE OF THE PHILOSOPHY OF BERGSON. By H. WILDON CARR, Hon. D.Litt.Durh. Pp. xii + 216. Price 6s. net. London: Macmillan and Co., Ltd., 1914.

This book is based upon a course of lectures on the Philosophy of Bergson delivered in the University of London. The author submits that the present generation is witnessing a wide extension of science in directions unimagined and inconceivable by the last generation, and that "experiment is opening up realms of reality, the existence of which has until now been unsuspected, and the discovery of which is probably destined to widen the horizon of human knowledge, and thus increase human power." The theme is dealt with in nine chapters, and includes such subjects as "The Doctrine of Intuition," "The Mind and Body," "Matter and Spirit," "The Vital Impulse," "God, Freedom, and Immortality," "The Idea of a Reality which Creates and is Free," in which the views of many philosophers are referred to and discussed.

A TEXT-BOOK OF PATHOLOGY FOR STUDENTS OF MEDICINE. By J. GEORGE ADAMI, M.A., M.D., F.R.S., and JOHN McCRAE, M.D., M.R.C.P.Lond. Second edition, revised and enlarged. Illustrated; pp. viii + 878. Price 25s. net. London: Macmillan and Co., Ltd., 1914.

The changes in the new edition of this work are of a somewhat comprehensive nature. The revision of each subject has been carefully undertaken, with a view to incorporating all trustworthy advances that the past two years have introduced. A new chapter has been added upon "The more important Infections and their Prominent Features." Another new feature, convenient for reference, is the syllabus placed at the beginning of each chapter, detailing its contents, with page references. The chapter on "Monstrosities and Abnormalities" has been placed as an appendix, while the volume contains no fewer than ninety-one additional engravings and two coloured plates.

LECTURES TO NURSES; BEING A COMPLETE SERIES OF LECTURES TO PROBATIONARY NURSES IN THEIR FIRST, SECOND, AND THIRD YEARS OF TRAINING. By MARGARET S. RIDDELL. Illustrated; pp. xii + 351. Price 3s. 6d. net. London: The Scientific Press, Ltd., 1914.

The training and education of the hospital nurse are well provided for by the literature which especially caters for her instruction. The author of this book, the latest upon the subject, is the sister of the senior surgeon of the Aberdeen Royal Infirmary. In the preface

we learn that the proof-sheets have been revised by him ; the work, therefore, appears under the ægis of medical authority. The lectures have been designed to afford a progressive course of instruction. There are ten devoted to first-year probationers, ten to probationers of the second year, and the same number to probationers of the third year. The remarks, in the introductory chapter, upon hospital etiquette are well-timed and useful, especially as it is a subject which hospital matrons often fail to impress upon their juniors. The behaviour of the present-day probationer towards those in authority over her is commonly very far from what it should be, in the matter of a respectful bearing. The first course deals mostly with elementary matters, and includes remarks upon counter-irritants, fractures, and hæmorrhage. The second course is mainly devoted to infectious diseases, wounds, poisoning, burns, and the nursing of acute cases. The third course explains asepsis and antisepsis, sterilisation, describes the operating theatre, and the nursing of cases in the special departments, concluding with notes on electricity and massage. A copious index completes the volume.

AN INDEX OF SYMPTOMS, WITH DIAGNOSTIC METHODS. By RALPH WINNINGTON LEFTWICH, M.D. Fifth edition. Illustrated ; pp. xii + 516. Price 7s. 6d. net. London: Smith, Elder and Co., 1915.

This new edition of the author's work is greatly enlarged as compared with previous issues. The increase in bulk is due to the addition of many new symptoms and tests, while the interlineary notes have been greatly amplified. A further new feature is the attempt to devise a scientific classification of symptoms. In view of its amplification the author affirms that his work is no longer a pocket book, but a book for the desk.

THE SURGERY OF THE STOMACH: A HANDBOOK OF DIAGNOSIS AND TREATMENT. By HERBERT J. PATERSON, M.A., M.C., M.B.Cantab., F.R.C.S.Lond. Illustrated ; pp. xx + 342. Price 15s. net. London: James Nisbet and Co., 1914.

This second edition of Mr. Paterson's book on the surgery of the stomach, following as it does the first edition after an interval of only a year, has not involved extensive revision. Some minor alterations have, however, been made. One new feature is the reproduction in pairs of stereoscopic photographs of the operation of gastro-jejunostomy. Though the pathology of the diseases treated of is not passed over, the subject is discussed principally from the clinical point of view. References to the work of others are freely given, but the author, in his descriptions, trusts very largely to his own wide experience. The surgery of the stomach is very completely dealt with. The book is embellished by copious, mostly photographic, illustrations.

THE BOOK OF PHARMACOPŒIAS AND UNOFFICIAL FORMULARIES. By E. W. LUCAS, F.I.C., F.C.S., and H. B. STEVENS, F.I.C., F.C.S. Pp. viii + 524. Price 7s. 6d. net. London: J. and A. Churchill, 1915.

Intended for practical pharmacists, this book presents in comparative tables, side by side, the formulas contained in the pharmacopœias of Great Britain, the United States, France, Germany, and Italy, together with extracts from the unofficial formulas of these countries and of the London hospitals. The commonly used Latin name of each of the preparations has been adopted as far as possible, the synonyms being added, reference to each of which is given in the index. The Imperial System of weights and measures has been adhered to without giving the metrical equivalents ; but whereas the British and American formulas are to be prepared according to the rule of "solids by weight, liquids by measure," in the preparation of foreign formulas both solids and liquids should be weighed. Brief notes upon those processes to which reference is made in the body of the work are appended, and are followed by an alphabetical list of the materia medica under their French, German, and Italian names, with their English equivalents, and a general index.

THE DISPENSARY TREATMENT OF PULMONARY TUBERCULOSIS. By HILDA CLARK, M.B., B.S.Lond. Tables; pp. viii + 279. Price 15s. net. London: Baillière, Tindall and Cox, 1915.

This account of the author's experience of tuberculin treatment extends over a period of three years (1910-13), and embraces only those cases which have been under her own observation; the investigation being carried out with three main objects: (1) To estimate the value of tuberculin treatment; (2) to estimate the position of that treatment in any scheme designed to deal with the special problem of tuberculosis among the working classes; and (3) to estimate the incidence, course, and response to treatment of tuberculosis in the population of a selected manufacturing village, where peculiar opportunities existed for such an investigation. It is claimed that a consecutive series of cases, treated on the same general lines, derived from a stable, homogeneous population living under good hygienic conditions, is best suited for the study of the value and method of any scheme intended for the general treatment of tuberculosis, since they show, not only the conditions occurring before tubercle becomes complicated by extreme poverty or discharge from work, but also the residue of tubercle which remains to be dealt with when certain obvious causes of massive infection and of damage to general health have been eliminated. In these investigations the discovery of the bacillus in the sputum was considered the only certain proof of lung infection, but in studying the position of tuberculin treatment in a scheme for the eradication of tuberculosis, special attention must be paid to those persons in whose sputum no bacillus is found, since among them must be the early cases with which preventive measures are concerned, and in which complete cure is possible. The author concludes that tuberculin can be used with apparently good effect in nearly every case in which ordinary clinical methods point to a prognosis of improvement; that in a large proportion of cases, in an early stage or limited in extent, tuberculin results in apparent cure; and that a course of tuberculin is a justifiable and safe treatment in cases which show no bacilli or other evidence of active tuberculosis, but which react to tuberculin. If these conclusions be accepted, the author contends that the administration of tuberculin should be adopted in any scheme for the eradication of tuberculosis.

FLIES IN RELATION TO DISEASE: BLOOD-SUCKING FLIES. By EDWARD HINDLE, B.A., Ph.D. Illustrated; pp. xvi + 398. Price 12s. 6d. net, 8vo. Cambridge: At the University Press, 1914.

The main object of this book is to lay before the public the part that is taken by suctorial flies in the transmission of disease. In pursuing it the author has given in considerable detail an account of the classification of the insects involved, of their habits and habitats, and of the means at our disposal for attacking them. The history, symptomatology, and treatment of the many diseases which they cause is also dealt with at some length. These two parts of the subject are naturally treated alternately, as each class or species is under discussion. The reader therefore meets with sections that are highly technical, followed by those of more general interest. The book travels over a very wide field, and is the complement or companion of a volume in the same series dealing with the non-suctorial flies, noticed in our issue of December, 1914, No. 2 (Supplement: Notes on Books), p. 11.

THE BLOOD: A GUIDE TO ITS EXAMINATION AND TO THE DIAGNOSIS AND TREATMENT OF ITS DISEASES. By G. LOVELL GULLAND, M.A., B.Sc., M.D., F.R.C.P.E., and ALEXANDER GOODALL, M.D., F.R.C.P.E. Second edition. Illustrated; pp. xvi + 384. Edinburgh and London: W. Green and Son, 1914.

The first edition of this work, which was published in 1912, was intended to place before the student and practitioner a concise and clear account of the diseases and the diseased conditions of the blood and blood-forming organs, which account, in this edition, has been entirely revised and in part rewritten. The authors have preferred to rely upon their own clinical and pathological experiences rather than upon the collation of the views of

others, and have described fully only those methods which they have themselves found essential and useful, the less important methods being referred to their original sources of information, chief among which is the summary of hæmatological literature published under the name of "Folia Hæmatologica." The contents of the volume are arranged in five parts, the first of which is devoted to the methods of examining the blood, and the second to a description of its formed elements, while the remainder is given up to the consideration of its condition in diseases characterised by anæmia, leucocythæmia, the hæmorrhagic diatheses, &c., special diseases of the general organs and system, and those due to animal parasites. There is an appendix containing an account of the treatment of pernicious anæmia by splenectomy; and scattered through the letterpress are numerous illustrations of appliances and instruments, together with a series of coloured plates of blood cells in various pathological conditions.

EXTRACTION OF TEETH. By F. COLEMAN, L.R.C.P., M.R.C.S., L.D.S. Second edition; illustrated; pp. 174. Price 3s. 6d. net, 8vo. London: H. K. Lewis, 1914.

This issue is not considerably larger than the first edition of 1908, but it has been practically rewritten and rearranged, with the addition of more illustrations. The general surgical and anatomical principles governing the important operation of tooth extraction are supplemented by detailed consideration of the special technique which each class of tooth requires for its successful removal without breakage and the least amount of injury to alveolar and gum tissues. The suitability of various instruments for straightforward, as well as difficult, work is discussed in a manner easily referred to in either an easy or complicated case by the expert or general practitioner. Of the illustrations, some forty are devoted to depicting the forms of forceps, elevators, &c., the author considers most suitable; others showing the best method of handling and demonstrating the means of attacking hidden and inaccessible teeth or roots. The indications for general anæsthesia, local or regional analgesia, are considered, and the arising complications sufficiently indicated without trenching upon the legitimate grounds of a treatise on anæsthetics. Diagrams of tooth-forms and the relations of roots to surrounding structures of the maxilla and mandible should be of assistance to student and practitioner, who will also find notes on treatment of hæmorrhage and the various accidents and vicissitudes that invariably accompany the "minor" but often serious operation of tooth extraction. There are references to the writings of Dr. Blumfeld and Mr. A. D. Fleming in the *Proceedings of the Royal Society of Medicine* upon the sequelæ of local anæsthesia.

LYON'S MEDICAL JURISPRUDENCE FOR INDIA, WITH ILLUSTRATIVE CASES. By L. A. WADDELL, C.B., C.I.E., LL.D., M.B., F.L.S. Fifth edition. Price 28s. net. Calcutta and Simla: Thacker, Spink, and Co., 1914.

The fifth edition of this well-known book on medical jurisprudence in India has been largely rewritten and many additions have been made. A full account of medical evidence and procedure is given, and special attention is directed to the difficulties of ascertaining the truth in criminal cases in India, such as the rapid decomposition of the body which tends to occur, the untrustworthiness of native evidence, and so forth. The methods of identifying by means of finger-prints are described. Included in the accounts of death from various forms of violence are descriptions of the injuries and effects produced by daggers, spears, and arrows. Part II, which deals with toxicology, occupies nearly half the book. In addition to the familiar poisons, accounts are given of various poisonous plants, unknown or little known in this country, but frequently the means of poisoning in India. The statistical information is, in some cases, rather out of date. Lieut.-Colonel W. D. Sutherland, M.D., contributes a chapter on the examination of blood-stains. He describes the recent biochemical tests, and considers that they afford an accurate means of determining the origin of a blood-stain. The illustrative cases given go a long way to support this conclusion. There is a plate showing the results of the precipitation test for human blood.

THE VICIOUS CIRCLES OF NEURASTHENIA AND THEIR TREATMENT. By JAMIESON B. HURRY, M.A., M.D.Cantab. Diagrams; pp. xvi + 90. Price 3s. 6d. net, 8vo. London: J. and A. Churchill, 1915.

Some years ago the author drew attention to the important part played by the vicious circle in disease, and showed how a study of it might be helpful in diagnosis, prognosis, and treatment. In the present work an attempt is made to indicate the influence of the circle in one particular disorder—i.e., neurasthenia. In Chapter I the pathology of this affection is discussed: the two dominant features are stated to be fatiguability and irritability, a combination which Sir William Gowers was wont to designate "irritable weakness." In subsequent chapters the writer discusses the influence of the circle in connexion with the psychoses (as illustrated by phobias, mental depression, anorexia nervosa, and insomnia) and disorders of the vascular, respiratory, digestive, and genito-urinary systems, and of the sense organs. Next, artificial circles are dealt with, to wit, those associated with alcoholism, narcomania, nicotism, the abuse of purgatives, the abuse of pessaries, the abuse of urethral sounds, and nosophobia. In Chapter IX the importance of breaking the vicious circle is insisted upon. In the concluding chapter the author dwells upon the need for a text-book of therapeutics based on the principle that the medical art mainly consists in the breaking of the circle.

THE ACUTE ABDOMEN. By WILLIAM HENRY BATTLE, F.R.C.S. Second edition, enlarged and illustrated; pp. xii + 295. Price 10s. 6d. net. London: Constable and Co., Ltd., 1914.

Many additions have been incorporated in this new edition. First, most of the subject-matter of the author's oration given before the Medical Society of London in 1910 is included. Again, a special section is devoted to the after-effects of abdominal injuries; other sections deal with perforations of tuberculous ulceration of the intestine; perforations of diverticula of the large bowel; intraperitoneal abscesses; concealed abscesses; sigmoiditis, and torsion of the omentum. In Part VII is discussed diverticulum of the cystic duct of congenital origin. Thus the work, in its enlarged form, in this second edition, contains many new features, illustrative of practical experience of the subject with which it deals.

A CLINICAL STUDY OF THE SEROUS AND PURULENT DISEASES OF THE LABYRINTH. By Dr. ERICH RUTTIN, Privat-Docent in the Otological Clinic of Vienna, with a Preface by Professor URBANTSCHITSCH. Translated from the German by HORACE NEWHART, A.B., M.D., Instructor in Otology, University of Minnesota. Illustrated; pp. viii + 232. Price 8s. 6d. net, 8vo. London: W. Heinemann, 1914.

The object of this monograph is to furnish American and English students who have attended the Vienna clinic of otology under Professor Urbantschitsch and Dr. Ruttin with a compendium of the lectures and demonstrations in their own language. To others it constitutes almost the only manual of instruction devoted to this department of surgery. The first hundred pages are descriptive of the science and treatment of labyrinthine disease. The study of the phenomena of nystagmus and disturbances of equilibrium is simplified as much as possible by the detailed and freely illustrated description of methods and tests in the chapter on functional examination of the cochlea and vestibular apparatus. The second chapter of this section takes up the consideration of the varieties of labyrinthitis, diffuse, serous, and purulent, their pathology, ætiology, and symptoms; the indications for the radical and the labyrinth operations, and the technique of the latter. Hints for practice are to be gleaned from the remarks upon temperature and febrile conditions, their importance in diagnosis and prognosis, and also upon the clinical termination of the forms of labyrinthitis. This section concludes with three chapters devoted respectively to Injuries of the Labyrinth, with statistics, Serous, induced Labyrinthitis, and Labyrinthitis with Brain Abscess. The remaining pages are devoted to the narration of 108 clinical cases, amply described, though somewhat abbreviated by the translator. Professor Urbantschitsch places his stamp of approval on this work in the "Foreword" contributed by his pen. There is a list of authors and an index.

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SUPPLEMENT

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THE CANCER PROBLEM. By WILLIAM SEAMAN BAINBRIDGE, A.M., Sc.D., M.D. Pp. xix + 534. Price 17s. net. New York: The Macmillan Co., 1914.

The enormous literature now included in the area of the subject of cancer—an area, incidentally, which is yearly being increased by ardent workers—has been laid under contribution in the compilation of this work. To do more, however, than offer a brief description in this notice of some of the contents of this book would not be possible within the limits of our space. To all those, therefore, to whom the subject of cancer appeals, desirous of learning the present position of the cancer problem, we would recommend the perusal of the volume itself. The opening chapters deal with the ancient history of the disease and the history of modern cancer research. For America is claimed the inception of the movement for the study of cancer by Professor R. Pack in 1899, and in the same year the initiative of the movement in England is assigned to Sir Malcolm Morris. A detailed account is given of the Research Laboratories of the Middlesex Hospital, following which is a full report of the foundation of the Imperial Cancer Research Fund, in whose laboratories, as the author points out on a subsequent page (p. 151), the fact was first experimentally demonstrated that "surgical removal is as yet the only sure way in which an animal can be protected against the ultimate consequences of inoculation with cancer cells"—thus absolving "the surgical treatment of cancer from the last vestiges of the charge that it is unjustifiable." After the discussion of the zoological distribution of cancer, statistics are dealt with. These show the importance of chronic irritation as a causative factor; that the question of the relative increase of cancer is still undetermined; that the influence of heredity is almost negligible; that the *canard* of so-called cancer houses has no foundation in fact. Other sections are devoted to "Etiology" and "Histo-pathology"; to a résumé of the world's work on cancer research; to prophylaxis; to non-surgical treatment; surgical treatment; and inoperable cancer. There is also a section on the investigation of "cancer cures," which exposes the many fallacies and failures of such attempts. Among these the fiasco of Count Mattei's crudities is entertainingly narrated. As a last comment the author writes: "If cancer cells be cut out soon enough a permanent cure is effected." This is the fact which he maintains has been established upon the basis of our present knowledge of the disease, and is, in his opinion, therefore "sufficient to warrant the statement that we are travelling hopefully." A general bibliography, an index of authors, and a general index complete the volume.

FOOD PRODUCTS. By HENRY C. SHERMAN, Ph.D., Professor of Food Chemistry, Columbia University. Pp. x + 594. Price 10s. net, 8vo. New York: The Macmillan Co., 1914.

This is one of the many books published lately on the chemical composition and nutritive value of food. The general plan adopted in it is to devote a chapter to each important type of food covering (1) an account of its production and preparation for the market, with such brief statistical data as will indicate the relative economic importance of the industry; (2) the proximate composition and general food value; (3) questions of sanitation, inspection, and standards of purity; (4) special characteristics of composition, digestibility, nutritive value, and place in the diet. There is a full bibliography at the end of each chapter. It should be noted that the consideration of diet in disease does not come within the author's plan, and that the very extensive information on standards of purity and on food inspection applies only to America. The book concludes with a detailed table of "100-calorie portions" and a full index.

MANUAL OF MILITARY HYGIENE FOR THE MILITARY SERVICES OF THE UNITED STATES. By VALÉRY HAVARD, M.D. Illustrated; pp. xiv + 786. Price 25s. London: John Bale, Sons and Danielsson, Ltd., 1914.

Modern wars have shown how much the value of an army, as a fighting machine, is increased by the enforcement of the scientific principles of hygiene. The importance, therefore, of military hygiene is obvious. In peace time discoveries are made, of useful and beneficent import, which in war time can be turned to valuable account. But such discoveries are apt to be rapid in realisation; they may soon throw out of date previous knowledge—a fact to which the author of this book alludes. The first edition of his manual was published about four years ago; during this interval, however, the advances made in all branches of hygiene have been such that in this new edition the work has required much amplification and thorough revision. The volume is larger by 283 pages, and 28 more illustrations have been added. It now contains sixty-two chapters, a biographical list of the more recent works on hygiene, and an extended index. Respecting the three diseases most under notice among our forces on the Continent—namely, typhoid, tetanus, and "frost-bite"—it is not without interest to note some observations by the author so far as the military services of the United States are concerned. In the first place, antityphoid inoculation is held in high esteem. The results under the voluntary system proved so satisfactory and promising, that in June, 1911, the method was made compulsory for all recruits. "All men enlisting, unless they were over 35 years of age or have had a recent attack of the disease, are vaccinated against typhoid fever at the time that they are vaccinated against small-pox." Tetanus is lightly touched upon, the matter being dismissed in a page and a quarter. Only seventeen cases of the disease, with twelve deaths, occurred in the United States Army during eleven years, 1898-1908. A 3 per cent. alcoholic solution of iodine, and daily irrigation of the wound with hydrogen peroxide, are recommended for local treatment. In the treatment of frost-bite immersion of the part in ice-cold water, with continuous frictions, are advised. The Russian writers, however, claim excellent results from the use of hot water, as hot as can be borne.

ESSENTIALS OF HUMAN PHYSIOLOGY. By D. NOËL PATON, M.D., B.Sc., F.R.C.P.Ed., F.R.S. Fourth edition, revised and enlarged, with 218 figures in the text; pp. xx + 558. Price 12s. Edinburgh and London: W. Green and Son, 1914.

The last edition of this work having been issued seven years ago it became necessary, with the recent rapid advances of physiology, that this new edition should undergo much revision. Accordingly many sections have been rewritten, and the whole work has been brought up to date. Moreover, many re-arrangements of matter have been introduced, and less important details deleted, in order to give greater prominence to those points of the science which bear most directly upon medical and surgical science. The author, throughout the volume, lays

stress upon the intimate association of physiology with the study of disease, and emphasises his teaching by frequent reference to the disturbances of function associated with morbid conditions. The practical knowledge of physiology from this point of view in the present day is rapidly becoming of greater importance, one of the many proofs of which is to be found in the relation which the internal secretions bear to the processes of metabolism, and of their effects, when these secretions are at fault. In this new edition a more minute subdivision of the contents and an extended index have been incorporated.

INFECTION AND RESISTANCE: AN EXPOSITION OF THE BIOLOGICAL PHENOMENA UNDERLYING THE OCCURRENCE OF INFECTION AND THE RECOVERY OF THE ANIMAL BODY FROM INFECTIOUS DISEASE. By HANS ZINSSER, M.D. With a chapter on Colloids and Colloidal Reactions, by Professor STEWART W. YOUNG. Pp. xiv + 546. Price 15s. net. New York: The Macmillan Co., 1914.

The author of this book is the Professor of Bacteriology at the Columbia University, New York. He states, in the preface, that in the compilation of his work "all available sources of information have been freely used." Of this there is clear evidence. In an index of authors consulted is included no fewer than 920 names, a convincing testimony of the labour which the preparation of the book must have involved. The subject-matter is dealt with in twenty-one chapters, inclusive of the contribution by Professor Young, of which due notice is taken upon the title-page. Prominent among the features of this book is the attention given by the author to the historical details underlying this comparatively new and progressive science. In each particular section an historical survey precedes the subsequent description of the development of our knowledge upon the subject. Thus, for the students for whom the work has been written, this method implies facility of teaching; the foundations of the science are explained before any attempt is made to deal with the superstructure. The first chapter discusses "Infection and the Problem of Virulence"; the second, "Bacterial Poisons." Then follow two chapters upon "Immunity," in its various forms—natural, acquired, and artificial. Succeeding chapters include "Toxin and Antitoxin," "Bactericidal Properties of Blood Serum," "The Phenomena of Agglutination." A full account of "Phagocytosis" follows, to which four chapters are devoted, and the same number is given to "Anaphylaxis," forming the bulk of the book. The description of "Therapeutic Immunisation in Man" in chapter xix contains many practical details; lastly, a special chapter is given to Abderhalden's work on protective ferments. Although primarily intended for the student in medicine, this book nevertheless here and there discusses, from a critical aspect, the work of others, but "with as little prejudice," the author observes, "as the possession of a personal opinion in many cases has permitted."

A TEXT-BOOK OF RADIOLOGY. By EDWARD REGINALD MORTON, M.D., C.M.Trin., Toronto, F.R.C.S.Ed., &c., Past President of Section of Electrotherapeutics, Royal Society of Medicine. Illustrations; pp. xvi + 221. Price 7s. 6d., 8vo. London: Henry Kimpton, 1915.

This volume does not aim at being comprehensive, but at forming a guide to those taking up radiology for the first time, to help them to understand the various appliances and methods of using them, and to conduct them along the first steps in the use of the X-rays in the diagnosis and treatment of disease. Electrical principles are dealt with in the first chapter, so far as they apply to X-ray work. The X-ray tube comes in for full consideration, as a proper knowledge of its management is essential for successful results. The various types of installation are described in principle and drawings provided where necessary. Stereoscopic radiography and other methods of localisation of foreign bodies are described in detail, and some space is given to the interpretation of radiographs, though only experience can teach this art adequately. Chapters are given specially dealing with the examination of the thoracic, abdominal, and pelvic organs, not in an extensive way, but enough to form a foundation on which to base further study and experience. The last chapter is devoted to X-ray therapeutics. The volume is illustrated with a number of plates to which notes are appended as well as references to the text.

A HISTORY OF THE INDIAN MEDICAL SERVICE, 1600-1913. Volumes I and II. By Lieut.-Colonel D. G. CRAWFORD. Illustrated. Price 28s. London: W. Thacker and Co., 1914.

In these two volumes a description is given of the origin and development of the Indian Medical Service, with biographical sketches of some of the remarkable men who have belonged to it. From the very earliest period of the existence of the East India Company medical men have been appointed to minister to the medical needs of its servants; and Colonel Crawford, in his account of the careers of the medical men, records the development of the Company's possessions until they were taken over by the Crown after the Indian Mutiny. He shows that during the whole period the influence of the medical officer has in no small degree contributed to the stability and acquiescence of our rule in India. This has been acknowledged many times, but by none in so practical a manner as by Lord Dalhousie and Sir James Outram, in their important memoranda concerning the value of the medical service to India and the justice of according to it a high status among the services of the country. If any selection of chapters be made, perhaps those devoted to Dr. Gabriel Boughton, Dr. William Hamilton, and Dr. John Holwell, who, each in his own time, rendered great and valuable service to the East India Company and to the English nation, may be singled out as of particular interest. The author has not attempted to trace the causes or to describe the beginnings of the wonderful development of the I.M.S. during recent years, but he has provided the dry bones in readiness for the writer who, equipped with the necessary knowledge and inspired by the necessary enthusiasm, shall one day make these dry bones live. It is a story well worth telling, and perhaps Colonel Crawford, now that he has collected the *mémoires pour servir*, will himself attempt it.

THE INEVITABLE COMPLEMENT: THE CARE AND AFTER-CARE OF CONSUMPTIVES. By HAROLD VALLOW, M.D. Pp. viii + 66. Price 1s. 6d. London: John Bale, Sons and Danielsson, Ltd., 1915.

The preface explains that the contents of this booklet have been prepared with the intention of helping the various bodies engaged in dealing with the suppression of phthisis to provide for the care and after-care of the patient. Not only is it necessary that he should be placed in a sanatorium and remain there for the requisite length of time according to his symptoms, but, in order that the good results obtained at those institutions should become permanent, some suitable dwelling and occupation after his discharge must be found for him. The author advocates for this purpose the formation of a Tuberculosis Unemployment Bureau, and gives a list of the most suitable forms of work for male and female consumptives; the main desideratum being open-air employment. He advises a system of visitation at the patient's home, and the provision of occasional help in the domestic duties, of extra nourishment, and of beds and bedding, so that each member of the consumptive household may have a separate bed. "For the attainment of success," says the author, "we must have the co-operation of all political parties, carried out on a non-political basis." While heartily endorsing his pious wish, we envy him his optimism.

RECREATIONS OF A PHYSICIAN. By A. STUART M. CHISHOLM. Price \$2.00. New York and London: G. P. Putnam's Sons, 1914.

The author, an American physician, gives us ten essays, which he has read before different societies, and which have appeared in the *Journal of the American Medical Association*, or in the *Albany Medical Annals*. Those which have a specially medical interest are "Specialisation," "Physicians as Men of Letters," "The Inherent Spirit of Medicine," "Some Features of Medicine in the Seventeenth Century," and the last, "On the Prevention of Disease." Of a more general literary interest are those entitled "Banquo," "The Symbolism of Names," "Royal Authors," "Some Translations of Horace," and "The Picaro in Fiction." The essays indicate a wide acquaintance with the literature and history of England, France, and Spain. In "Some Translations of Horace" the author introduces some of the odes, rendered by himself into English in the Horatian metres.

A COMPLETE HANDBOOK FOR THE HOSPITAL CORPS OF THE U.S. ARMY AND NAVY AND STATE MILITARY FORCES. By CHARLES FIELD MASON. Illustrated; pp. xviii + 596. Price 20s. London: John Bale, Sons and Danielsson, Ltd., 1914.

The author's object has been to prepare a handbook which would include in one volume of about 600 pages all the numerous subjects taught to the Hospital Corps of the U.S. Army and Navy, thus doing away with the necessity for several different volumes. The work is divided into twelve parts, the principal of which deal with Anatomy and Physiology, First-aid, Nursing, Diet, Therapeutics, Hygiene, and Minor Surgery, besides instructions for drawing reports and keeping records, and the Regulations for Ambulance and Hospital Drill. The book has the approval of the Surgeons-General of the U.S. Army and Navy, and supplies information in all essential medical and administrative detail. It is written in plain language, and is fully illustrated and indexed.

PRACTICAL PHYSIOLOGICAL CHEMISTRY. By SYDNEY W. COLE, M.A. Fourth edition. Illustrated; pp. xvi + 258. Price 7s. 6d. Cambridge: W. Heffer and Sons, Ltd., 1914.

This is the fourth edition of a work originally intended for the medical student, which contains an account of the properties of the more important physiological substances and their significance, together with a detailed description of the various analytical processes employed in their estimation, in which reference the author inculcates the advantages of the modern micro-chemical tests for substances present in the blood and urine over the older so-called clinical methods. The early chapters are devoted to a consideration of the proteins, carbohydrates, and fats; the chemistry of certain common articles of food; and the composition of the digestive juices and ferments. The principal section of the work deals with the urine, and the methods used to obtain a quantitative analysis of its various constituents; while the appendix contains several of the most recent methods of estimating physiological substances in the blood and urine, respecting the accuracy of which the author has satisfied himself by personal experience. The rapid sale of the former editions points to the realisation by practitioners and students of the great importance of accurate analytical methods, the results of which are utterly unobtainable by the older tests.

CLEAN WATER, AND HOW TO GET IT. By ALLEN HAZEN. Second edition; revised and enlarged. 32 illustrations; pp. 196. Price 6s. 6d., foolscap 8vo. New York and London: John Wiley and Sons, and Chapman and Hall, 1914.

This non-technical but complete account of the sources and regulation of civic water supply, by a member of the American Society of Civil Engineers, is specifically limited to the developments of practice in the United States. Though the conditions of that country as compared with Europe imply smaller cities in general and less density of population, on the other hand, the average consumption of water *per capita* is very much greater; and the difficulties of storage and purification, to meet more varying rainfall and contamination, due to climatic causes and a higher temperature, are among the factors which have called forth great efforts. The allied—or even precedent—subject of sewage treatment is only parenthetically alluded to, the view being taken that of far greater importance is the physical, chemical, and biological purification of water during collection, storage, and distribution. An elementary but quite general and complete description is given of the principles involved in the selection of watershed or “catchment” areas, and in controlling and husbanding the supply from small and large lakes, rivers, and from the ground. The relative advantages of natural and artificial reservoirs are compared, and the construction of the latter, as to the behaviour of water in deep or shallow storage under different local conditions, and the geological character of the water sources described. Purification by “mechanical filtration” (which has a special technical meaning), by screening, subsidence, scrubbing, aeration, intermittent filtration, chemical or other disinfection, and the combinations of these which

have proved the most effective under certain conditions, are discussed in sufficient detail for their respective importance to be clearly understood. Illustrations, though on a small scale and pictorial rather than diagrammatic, are given of many municipal waterworks and their component departments. Data are given of the constructional elements of large filters, pumps, pressures and pipes, with their fittings, especially in relation to the secondary but disturbing and important considerations of supply for fire, power, and the sanitary service. Notwithstanding the enormous developments of the administration and design of hydraulic installations within the last few years in the United States, it is obvious that the much greater problem—with which the author is most concerned—is that of effectually coping with the impurities—suspended, in solution, or as determining taste and odour—of water, which so profoundly affect the health and comfort of the people. The difficulties surrounding this, arising from geological and climatic conditions and from the circumstance that populations so rapidly advance upon, and contaminate, specially selected areas of water collection, are set forth. A perusal of this account of American methods of dealing with local troubles, often of an exceptional nature, by special precautions, may be suggestive to sanitarians and officers of water authorities in more stable and settled communities. The book has a short index; there is no bibliography.

THE PRACTITIONER'S GUIDE TO CLINICAL RESEARCH, ALPHABETICALLY ARRANGED IN SECTIONS.
Pp. 149 + xlix. Price 2s. 6d., cloth boards, foolscap 8vo. London: The Clinical Research Association, Ltd., 1914.

The object of this publication is to afford the general practitioner all necessary information for making use of the facilities of the Clinical Research Association in obtaining expert reports of chemical and bacteriological examinations in the diagnosis and treatment of disease. The compilation is the result of the experience for five years of the Editors of the *Journal of Clinical Research*. Their small manual enumerates systematically all the classes of cases in which this research is likely to be of value; and describes minutely the best way in which all necessary material may be obtained and forwarded for examination, with some indications of the probable deductions which may reasonably be expected to be drawn from results forthcoming. The Guide describes the apparatus and technique of procedure necessary, and sets forth the relative importance of different kinds of indications. Some forty sections treat of the best known and most reliable reactions employed in examining the body fluids and tissues—normal and morbid—and also of the analysis of potable water, milk, and other foods, the testing of drugs and for poisons, the comparison of antiseptics, preparation of vaccines, and conduct of various physiological reactions, with a note on veterinary applications. A copious index of some three thousand entries occupies forty-eight of the pages. The sections are also arranged alphabetically, from Blood to Urine and Vaccines. An appendix to the Guide sets out the rates of charges made by the Clinical Research Association for each item of the specific investigations or analyses described in the book, giving the cost (when the prices vary) to members and non-members of the Association. Specially reduced rates are made for hospitals and institutions, and in the treatment of the poor. Suggestions and information are given as to the preservation, packing, and transmission of specimens, and as to the assistance given by the Association in the conduct of post-mortem examinations or legal cases, in radiography, photomicrography, or the making or mounting of pathological specimens. Apart from the main object for which the Guide was compiled, its perusal indicates the alliance between bio-chemistry and physics, and the more obscure regions of disease and therapeutics.

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SUPPLEMENT

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NOTES ON BOOKS.

[*The purpose of these "Notes" is neither to praise nor to blame, but merely to draw attention to some of the new books and new editions which have been added to the Society's Library.*—ED.]

ELEMENTS OF PHARMACY, MATERIA MEDICA, AND THERAPEUTICS. By Sir WILLIAM WHITLA, M.A., M.D., LL.D. Tenth edition. Illustrated; pp. xii + 680. Price 9s. net. London: Baillière, Tindall and Cox, 1915.

This, the tenth edition of a work which was originally intended to give the student in a concise form such information as he was left to sift for himself out of two or more larger manuals, has been rendered necessary in consequence of the very numerous changes occasioned by the appearance of a new British Pharmacopœia. In the introduction attention is drawn to the change in the meaning of the term *Materia Medica*, which formerly embraced the whole of the subjects now divided into the four different departments of *Materia Medica*, Pharmacy, Pharmacology, and Therapeutics. Before long still further subdivisions will indubitably appear, but for the present it is sufficient to point out that pharmacology has come to be restricted to the science of the action of drugs on a healthy organism, whereas the word therapeutics refers to their application in the treatment of disease. The first part is devoted to Pharmacy and is illustrated by woodcuts, some of which remind us of early days when a knowledge of pill-making was essential to every practitioner of medicine; the second part refers to the administration of medicines, the writing of prescriptions, &c.; the third to *Materia Medica* (the physical characters of remedies); and the fourth to Pharmacology and Therapeutics; while the non-official preparations, their properties and actions, together with an index of poisons, complete the work.

THE PASSING OF VESALIUS. By G. MATHESON CULLEN, M.D. Illustrated; pp. 31. Reprinted from the *Edinburgh Medical Journal*, October-November, 1914.

The romantic and mysterious story of the closing scenes of the life of Vesalius is dealt with in this pamphlet, which contains a critical analysis of the conflicting contemporary reports of the events leading up to his departure from the Spanish Court, where he had been physician to Philip II, and of his subsequent wanderings until death overtook him, in October, 1564, on the island of Zante. The letter of Languetus to Peucer retailing the news which had been written by an unnamed correspondent in Spain, and upon which the latest biographers of Vesalius have relied, is dismissed as a forgery; and the author concludes from a careful examination of all the evidence that Vesalius went to Jerusalem as a pilgrim (he being probably an orthodox Catholic), in fulfilment of a vow, or at least from some religious motive—perhaps as a mark of thankfulness for his recent recovery from a dangerous illness. Vesalius had determined that his future home should be in Belgium, his native land, towards

which country his wife and daughter turned, after leaving him at Perpignan on his way to Venice. Thence he made his way by sea to Jerusalem, but on the return voyage the vessel encountered tempestuous weather, and on its putting into Zante, Vesalius was put ashore in a dying condition and was subsequently buried by a friendly hand. In the following year a monument was erected to his memory in the church of the Franciscan Convent of St. Mary, every trace of which has long since disappeared. It had been intended to mark the four hundredth anniversary of his birth (1514) by providing another monument which would record the inestimable debt which anatomy must ever owe to him, but while Europe continues to be devastated by fire and sword, this intention must necessarily be laid aside.

ADDRESS ON IMMUNITY AGAINST INFECTIOUS DISEASE, WITH SPECIAL REFERENCE TO ANTI-TYPHOID INOCULATION. By E. J. McWEENEY, M.A., M.D., D.P.H., F.R.C.P.I. Dublin: Sealy, Bryers, and Walker, 1915.

The contents of this pamphlet were delivered as recently as January last by the Professor of Pathology at University College, Dublin, as an address to the Statistical and Social Inquiry Society of Ireland (a non-medical audience), and give an account of the method of protective inoculation against typhoid fever, its underlying principles, and the results obtained by its use. Commencing with an explanation of the theory of immunity and immunisation, the author proceeds to consider the incidence of typhoid on the general population, which in Great Britain has fallen during the last twenty years from 800 to 44 per million in consequence of the ordinary measures of sanitation, including the discovery and isolation of "carrier" cases. After paying a tribute to the labours of Sir Almroth Wright and Sir William Leishman, he describes the methods by which they arrived at the conclusions which enabled them to place the practice of protective inoculation on a sound basis. The plan was tried at the Barming and Richmond (Dublin) Asylum outbreaks with marked success, but received its first extensive application in the Boer War (in which it probably did not receive a fair trial), after which differences of medical opinion arose which induced the War Office to suspend for a while the use of protective treatment. The author proceeds to give the main results reported by Sir William Leishman at the International Congress of Medicine in 1913, according to which, while in 1902 there were 1,012 cases of typhoid in the British Army in India, in 1912 the total number was 118, the reduction being in the main due to the extended employment of anti-typhoid vaccine. The history of the use of the treatment in America is then traced up to March, 1911, when an order was issued making it compulsory upon all those who were to participate in the manoeuvres on the Mexican frontier. The results achieved justified the step taken; and in the following June the order was made compulsory upon all recruits. Finally, in September, 1911, compulsion was extended to all persons in the American Army under 45 years of age. Since compulsion has been adopted, typhoid has become practically non-existent in the American Army, and from all sides similar evidence of its efficiency is obtainable; but while in the French Army compulsion has been in force since March, 1914, our own military authorities still falter. The latest report of the Army Sanitary Committee on Enteric Fever in the British Expeditionary Force shows that the total cases number 212, with 22 deaths, of which 212 cases, 173 (81·5 per cent.) and all the deaths occurred among the uninoculated. Of the remaining 39 cases, 28 had only received one injection or had been inoculated more than two years before, while only 11 cases occurred among those who were fully vaccinated.

TEXT-BOOK OF EMBRYOLOGY. By E. W. MACBRIDE, M.A., D.Sc., LL.D., F.R.S. Volume I, Invertebrata. Edited by WALTER HEAPE, M.A., F.R.S. Illustrated; pp. xxxii + 692. Price 25s. London: Macmillan and Co., Ltd., 1914.

This important work is the first of three volumes designed to show the association of the structural development of embryos with broad generalisation of what is known of their physiology. The second volume, by Professor Graham Kerr, will deal with the lower vertebrata, and the third, by Mr. Richard Assheton, with mammals. The scope of this work is indicated by its objects—namely, to place before the reader in a succinct form the best

ascertained results in the field of invertebrate embryology, and to indicate some of the problems which as yet remain unsolved and the best means of attacking them. In working out his scheme the author has chosen the spider as a type of the Arachnida rather than the scorpion, while the Trematoda and Cestoda have been left out of consideration because "it is difficult to obtain a complete series of the stages in the life-history of any one species." A feature of this work which the author has striven to maintain is that of placing before the mind of the student the conviction that the ultimate object of the science of embryology is not solely the acquisition of this special knowledge, but mainly the importance of determining the laws of life which underlie the history of the embryo. The book contains eighteen chapters, and is illustrated by 468 figures in the text. The excellent index occupies twenty-one pages.

A TEXT-BOOK FOR MIDWIVES. By JOHN S. FAIRBAIRN, M.A., B.M., B.Ch.Oxon., F.R.C.P.Lond., F.R.C.S.Eng. Illustrated; pp. xi + 317. Price 10s. 6d. net. London: Henry Frowde and Hodder and Stoughton, 1914.

The author of this book, while admitting the fact that he is adding another to the many text-books for the benefit of the midwife, pleads as his excuse that his work has special features, and that it is the outcome of a long experience of the needs and aspirations of those for whom it is intended. He maintains the view that among the more advanced school of practising midwives the thirst for knowledge is insatiable, leading to the use of medical books upon the subject to supply the deficiency. His hope, therefore, is that the scope of this work will be found to be wide enough to meet all the midwife's requirements in this regard. In the first forty-six pages are discussed the subjects of anatomy, physiology, and bacterial infection; then follow parts devoted to pregnancy, labour, abnormal presentations, abnormal labour, the infant, hygiene and disinfection, midwives' duties; an appendix, dealing with note-taking, weights and measures, and drugs; concluding with a glossary of terms not explained in the text, and the index. The book is fully illustrated.

RADIOGRAPHY, X-RAY THERAPEUTICS, AND RADIUM THERAPY. By ROBERT KNOX, M.D.Edin., M.R.C.S.Eng., L.R.C.P.Lond. Illustrated; pp. xxi + 406. Price 25s. London: A. and C. Black, Ltd., 1915.

This work, though partaking rather of the character of a handbook for those wishing to specialise in radiology, is intended to give as much information as possible in a compact form to students and practitioners on the subjects included in the title. The information given is essentially practical, diagrams are freely used to explain the principles of the various forms of apparatus, so that the beginner may readily understand how best to make use of them. The section on Radiography deals fully with the various modifications of technique, manipulation, and interpretation of the results obtained. Numerous illustrations are provided which will greatly assist the diagnosis of difficult cases. In the section on Radio-therapeutics the various methods of treatment are described in detail and the principles explained. The important question of dosage is dealt with thoroughly. The section on Radium is fairly extensive and is sufficient to give the reader a useful working knowledge of that important agent. The proper selection of cases and the appropriate methods of dosage are clearly explained, while the physics of radium has been fully dealt with by Mr. C. E. S. Phillips, F.R.S.Edin..

THE B.D.H. GUIDE TO THE BRITISH PHARMACOPŒIA, 1914. Diagram; pp. 175. Price 1s. London: The British Drug Houses, Ltd., 1915.

This guide to the new British Pharmacopœia, intended for the pharmaceutical chemist and compounder of medicines, has been compiled with the intention of pointing out the recent alterations, and of directing attention to those chemical substances which have now become official for the first time, and to the new galenical preparations which the pharmacist must henceforth stock; for it is probable that a heavier burden than the making of these

alterations is the discovery of what alterations it is necessary to make. Each article is dealt with alphabetically, and notes are made of the alterations, ostensible and otherwise. A single line at the side indicates that the substance so marked is official for the first time, and a double line that it differs materially in strength or composition from the corresponding preparation of the last Pharmacopœia.

AN INTRODUCTION TO THE STUDY OF ORGANIC CHEMISTRY. By H. T. CLARKE, D.Sc.Lond., F.I.C. Diagrams; pp. viii + 484. Price 6s. 6d. London: Longmans, Green and Co., 1914.

The author states that this text-book has been written in order to cover the ground of the last syllabus of the lower examination in organic chemistry of the Board of Education examinations in science and technology, and also to meet the requirements of candidates for the medical examinations in organic chemistry. In the study of this special subject stress is laid upon the fact that no real knowledge of organic chemistry without laboratory work can be acquired—a point of great importance to the student, inasmuch as the tendency of examination questions is now to demand the inclusion of the description “of all essential practical details.” Hence the necessity of a practical training in the science. The first two chapters are expository of the simplest features of the chemistry of the carbon compounds, and introductory to the discussion of the methods of purification and analysis. Then follows the description of the properties of the different classes of organic compounds. Three pages of problems and a full index complete the volume.

ENGLISH MEDICAL WOMEN: GLIMPSES OF THEIR WORK IN PEACE AND WAR. By A. H. BENNETT: with a Preface by STEPHEN PAGET, F.R.C.S. Illustrated; pp. 158. Price 3s. 6d. London: Sir Isaac Pitman and Sons, Ltd., 1915.

This book has been written in order that the history of the entrance of modern women into the medical profession, and the excellent work that has been accomplished by them in England, may be more widely recognised; and as a lay-woman the author claims that seeing the work from the outside enables her to describe details which interest outsiders. After a passing mention of the medical women of early times, we are reminded that the name of the first modern lady doctor, Miss Elizabeth Blackwell, M.D., of the University of Geneva, New York State, appeared in the first Medical Register which was issued in 1859; the first of her sex to procure an English medical qualification being Miss Garrett (afterwards Mrs. Garrett Anderson), who took the L.S.A.(Lond.) in 1865. The story of the long struggle at Edinburgh is then told in detail, and is pursued until we meet with the triumphant statement that every medical licensing and degree-conferring body in Great Britain has now opened its doors to women, except the Universities of Oxford and Cambridge. The author completes the first part of her narrative by tracing the history of medical teaching for women from its commencement in 1877, at the Royal Free Hospital, to which the London School of Medicine for Women has ever since been affiliated. The second part of the volume deals with the work of women doctors in peace and war, gives the history of the foundation and progress of the New Hospital for Women (which commenced as a dispensary in 1866 and to-day occupies a large building in the Euston Road), and takes a cursory survey of the various hospitals for women and children in London and the provinces, the medical staffs of which are composed wholly or in part of qualified lady doctors. Not the least interesting are the chapters dealing with the Women's Hospital Corps working under the French Red Cross, at Claridge's Hotel in Paris, and with the heroism of a similar corps under fire at the bombardment of Antwerp, and concluding with an account of the Medico-Psychological Clinic recently established in London for the practice of psycho-therapy, to which subject the following words of Mr. Stephen Paget's preface refer: “I doubt,” says he, “whether Miss Bennett is justified in saying that psycho-therapy is a good opportunity for women's work. In plain English psycho-therapy is the cure of souls; and there are parts of my soul which nothing would induce me to let a woman see—or a man either.” But psychopathy does not always permit volition or choice.

THE NEXT GENERATION : A STUDY IN THE PHYSIOLOGY OF INHERITANCE. With Supplement (inset). By FRANCES GULICK JEWETT. Illustrated; pp. xi + 235. Price 3s. 6d. Boston and London : Ginn and Co., 1914.

The purpose of this book is to present in plain language to young people the principles of heredity, environment, and personal development, so that they may understand how cell-life is carried on by a process of evolution from one generation to another. The laws of inheritance as expounded by Mendel, and their application to the reproduction of all plants and animals are lucidly explained, together with the meaning of dominant and recessive characters; with the corollary that as the required characteristics and type of any plant or animal can be obtained at will by human selection, so, without man's aid, Nature herself has arrived at a similar result by natural selection. The process of evolution (Darwin's five-linked chain) is exemplified in the codfish, in which the prodigality of Nature is instanced by its thousands of eggs, few of which get as far as being hatched, while among those which are hatched begins the struggle for existence. As that struggle continues variations appear among the survivors, those only who are fittest to survive becoming parents and transmitting to their descendants those characteristics of superiority which can with advantage be transmitted to future generations. The evidences of evolution are then discussed, and are followed by a description of the principles of heredity, and of Weismann's theory of the non-transmission of acquired characters. The remainder of the book deals with the deleterious influence upon the human organism of alcohol, tobacco, and venereal disease; and after brief mention of the recent gospel of Eugenics, the suggestion is made that in the same way that cretinism has been stamped out in the Valley of Aosta by preventing the marriage of affected persons, so race regeneration should be sought for in the inhibition (by legal means, if necessary) of the marriage of the unfit.

MALAY POISONS AND CHARM CURES. By JOHN D. GIMLETTE, M.R.C.S., L.R.C.P. Pp. viii + 127. Price 3s. 6d. London : J. and A. Churchill, 1915.

This small brochure is based upon the author's eighteen years' service in the Government of the Federated Malay States, ten of which have been spent in Kelantan. It is descriptive of the folk-lore of the Malays, and introduces us to many curious customs and practices of the witch-doctors, or medicine men, skilled in the use of local native medicines. The list of poisons is remarkable in its variety and extent; and yet we learn, from a notable native authority, "that a universal cure for any native poison can be prepared from the wing-bone of a goose, the horn of the wild goat, the spine of the sea-porcupine," and various yet unidentified jungle roots and barks. Goose bones are often used as a medicine, and form part of a mixture employed in the treatment of yaws. On the other hand, the administration of fresh coco-nut water is held in high esteem as an antidote in Malay poisoning. The poisons are derived from many sources—from fish, butter, snails, millipedes, jungle and village plants, powdered glass, sand and quicklime, and bamboo hairs, which mixed with powdered glass cause a chronic pseudo-dysentery. The reason, however, for this armamentarium of noxious products does not seem to be apparent. That they are used with lethal intent is evident; and that some of them are resorted to by burglars to avoid interruption in their nefarious designs is mentioned. But we do not gather from the author why the native Malays should require so many poisons for lethal purposes.

LE TRAITEMENT DES ANÉMIES. By H. VAQUEZ and CH. AUBERTIN. Charts; pp. 96. Price 1 fr. 50. Paris : J. B. Baillière et Fils, 1914.

The subject of anæmia has not attracted the attention it deserves, according to the authors, despite the advances which have been made within recent years in its ætiology and treatment. The time, therefore, they consider, has come for supplying the deficiency, and this small book is the outcome of their belief. Their observations are based upon the division of anæmia into two parts—namely, chloro-anæmia and anæmia of systemic origin, such as that due to cancer, syphilis, tuberculosis, toxæmia, &c. The bulk of the book deals

with the question of treatment, in which iron, arsenic, and arseno-benzol are discussed, as well as the use of serums and other methods, such as transfusion of blood, injections of defibrinated blood, cholesterin and glycerine, radio-therapy, thorium x, and splenectomy.

A KEY TO HEALTH AND LONG LIFE. By F. W. D. MITCHELL, I.S.O. Pp. 164. Price 3s. 6d. London: C. W. Daniel, Ltd., 1914.

From the preface we learn that the author, "now in his seventieth year, completed, almost a quarter of a century ago, the five years' course prescribed by the Conjoint Board, but owing to the demands of other work could not devote sufficient time to enable him to pass the Final Examination and obtain a medical qualification." The dietetic rules to which he draws attention have, we are told, been tested by him for more than forty years, and "their practical value and accuracy have been proved beyond all possibility of error." The arguments upon which these rules are based are summarised as follows (p. 13): "(1) By far the greater number of common diseases arise from degenerative changes within the body, not from infection or contagion from without; (2) the degenerative changes are the result of the presence in the blood of mal-products of digestion, called lithates, urates, or uric acid compounds; (3) the blood can be kept free from these highly injurious substances by a little self-denial, and by attention to a few simple precautions in regard to digestion, diet, and exercise; (4) the only certain, convenient, and reliable test of healthy digestion, applicable by anyone at any time, is the absence of visible deposits in the water after cooling." The author proceeds to support his argument by frequent quotations from various medical writers, ancient and modern, whereby he arrives at the conclusion that "it is becoming more certain every day that indigestion is the beginning of almost all our ailments—slight, serious, or fatal" (p. 118).

THE MENTAL HEALTH OF THE SCHOOL CHILD: THE PSYCHO-EDUCATIONAL CLINIC IN RELATION TO CHILD WELFARE. CONTRIBUTIONS TO A NEW SCIENCE OF ORTHOPHRENICS AND ORTHOSOMATICS. By J. E. WALLACE WALLIN, Ph.D. Pp. xiii + 463. Price 2 dollars. Yale University Press, New Haven, U.S.A., and Humphrey Milford, Oxford University Press, London, 1914.

Most of the chapters of this book are reprints from the various periodicals in which they originally appeared, their publication in volume form being prompted by the widespread interest which is rapidly manifesting itself in the grave social and educational problems which spring from the presence, in every populous community, of large numbers of mentally abnormal children. The object of the author is to show the way in which practical psychologists and expert educationalists may play their part in the movement towards the diagnosis, identification, study, and training of feeble-minded, backward, and mentally abnormal school children. The inspection of these children for the purpose of discovering communicable disease has become a universal custom, though the importance of examination for the detection of physical defects is not yet fully recognised; yet so far as the proper development of the individual is concerned, this is the more necessary of the two. The objects of school life and the interdiction of child labour are similarly directed towards providing children with such mental and bodily training as will eventually increase their future productive capacity; but unless the physical health is cared for the mental machine becomes incapable of assimilating the knowledge offered at school, the expense of which is borne by the State in the expectation that it will be returned in after years in the form of an increased capacity, mental and physical. The author's principal plea is for a further psychological examination, and he suggests, in this reference, the formation of a separate class for mentally deficient school children, by which means the progress of the regular class would not be hindered by backward scholars, and at the same time a sort of clearing-house would be established to which these backward scholars might be sent until, by medical and other treatment, they were rendered more capable of assimilating knowledge, when they would return to the regular class, while the residue upon whom ordinary treatment had no beneficial effect would be passed on to other institutions for the feeble-minded.

Proceedings of the Royal Society of Medicine.

SUPPLEMENT

(VOL. VIII, No. 8, JUNE, 1915).

NOTES ON BOOKS.

[*The purpose of these "Notes" is neither to praise nor to blame, but merely to draw attention to some of the new books and new editions which have been added to the Society's Library.*—ED.]

THE MINOR HORRORS OF WAR. By A. E. SHIPLEY, Sc.D. Pp. 166. Price 1s. 6d. net
London: Smith, Elder and Co., 1915.

This book is a reprint of the articles contributed by the author, which appeared in the *British Medical Journal*. For the benefit of those to whom the articles may be unknown, it may be stated that the title, "The Minor Horrors of War," is used neither in a medical nor a surgical sense, but describes the verminous authors of the discomforts which arise from uncleanly surroundings. Among these the louse, the bed-bug, and the flea are first dealt with; secondly, the flour-moth, flies, mites, and ticks. To leeches three chapters are devoted, about which much information is given, the author describing the medicinal leech "as really the friend of man and of the soldier, being a beneficial and not a harmful animal." This testimonial to the well-known *Hirudo medicinalis* is only just in view of the benefits which it is often able to confer. The work is written in a semi-popular style, and, as the author confesses, "in a certain spirit of gaiety"—the same gaiety which, despite depressing times, is unquenchable among, and characteristic of, our troops at the Front, thus setting an example to be followed by those to whom war service is impossible.

DOMESTIC HYGIENE FOR NURSES. WITH SO MUCH OF CHEMISTRY AND PHYSICS AS ARE NECESSARY TO THE REASONABLE UNDERSTANDING THEREOF. By FRED. J. SMITH, M.D., F.R.C.P. Second edition. With 20 illustrations; pp. 172. Price 2s. 6d.
London; J. and A. Churchill, 1915.

Nurses, assuredly, cannot complain of the amount of literature provided for them with which to supplement their training. This small book, compiled for the benefit of nurses, deals with the elementary facts of hygiene, a knowledge of which forms part of the nursing educational course. The author being the examiner in the subject to the nursing probationers at the London Hospital, the book naturally becomes one of examinational interest for those concerned, and the fact that a second edition has been called for proves that those for whom it is intended have found it useful.

SUPPLEMENT TO THE BRITISH PHARMACEUTICAL CODEX, 1911. INCLUDING ADDITIONS, ALTERATIONS, AND CORRECTIONS. Price 1s. net. London: The Pharmaceutical Press, 1915.

This supplement has been prepared, on the advice of the Scientific Advisory Committee, by the Pharmaceutical Society's Codex Revision Sub-Committee. It contains particulars of important additions and alterations which have become necessary since the publication of the British Pharmaceutical Codex, including new monographs, galenical formulæ, a series of formulæ for test solutions, a list of the chemical equivalents of substances known under proprietary names, alterations in the text of the Codex necessitated by the publication of the British Pharmacopœia, 1914, and a list of corrigenda.

THE LOCALISATION OF BULLETS AND SHELL FRAGMENTS. A RECORD OF PERSONAL EXPERIENCE. By FRANCIS HERNAMAN-JOHNSON, M.D. Pp. 28. Price 1s. net. London: H. K. Lewis, 1915.

This pamphlet is an amplification of two articles published by the author in the *British Medical Journal*. It comprises, not a treatise on localisation, but a record of personal experience. The value of X-ray work, in military practice, depends upon accuracy of localisation and rapidity of results. The author describes in his pages how both these objects can be attained by the methods he has introduced. The definite advantages of these he claims to be: (1) Saving of plates; (2) saving of time; (3) correlation of plate images with skin markings; (4) the skin marks are made by direct vision; (5) employment of a long base line; (6) portability.

DEFECTIVE CHILDREN. By T. N. KELYNACK, M.D. Pp. xvi + 462. Price 7s. 6d. net. London: John Bale, Sons and Danielsson, Ltd., 1915.

The literature devoted to child welfare, stimulated largely by the education service of the country, has become a noticeable feature during recent years. This book is the newest addition to the subject, and has been designed on comprehensive lines. Its object is to provide, in a practical form, information descriptive of the various incidents of defectiveness prevalent in children of the school age period, also to afford helpful advice in the adoption of prophylactic measures where such are likely to prove applicable, as well as to assist in the establishment of ways and means whereby effective steps may be organised for the rectification, arrest, or amelioration of all forms of defect. In furtherance of this scheme each subject dealt with comprises a contribution from a recognised authority, included among which are many well-known names. In addition, the work contains a descriptive account of defective children in other parts of the world, such as Canada, the United States, France, Germany, and Hungary. The scope of the work reveals the extent to which defectiveness prevails among children, and emphasises the need which exists for the adoption of methods to deal with it.

SCHEME FOR DEALING WITH TUBERCULOUS PERSONS IN THE COUNTY OF LONDON: ITS APPLICATION TO OTHER CITIES, WITH SOME OBSERVATIONS ON THE NATIONAL ORGANISATION OF THE CAMPAIGN AGAINST TUBERCULOSIS. By D. BARTY KING, M.A., M.D. Edin., M.R.C.P. Lond. & Ed. With a Foreword by Professor Sir WILLIAM OSLER, Bart., M.D., F.R.C.P., F.R.S. With charts; pp. x + 54. Price 5s. net. London: John Bale, Sons and Danielsson, Ltd., 1915.

The preparation of this scheme has taken the author two years to elaborate. In a foreword, Sir William Osler says of it: "It looks complicated, as does any great piece of machinery, but carefully constructed, managed by good engineers, and oiled by mutual good feeling, it should run smoothly and efficiently." In order fully to grasp the details of this scheme, reference must be made to the work itself. It covers a wide area of interests involved in the tuberculosis question—as, for example, in making provision for the intimate help and co-operation of the voluntary agencies, and in endeavouring to eliminate hospital abuse. In this effort to solve a great problem many original suggestions are put forward.

TEXT-BOOK OF PUBLIC HEALTH. By E. W. HOPE, M.D., D.Sc. Eighth edition, revised and enlarged. With 54 illustrations; pp. x + 267. Price 5s. net. Edinburgh: E. and S. Livingstone, 1915.

This book is a reprint of the section on public health which has hitherto appeared in Husband's "Forensic Medicine," and the republication of this section as a separate volume will, the author believes, prove more serviceable to the student. The scope of the work has been designed to meet the requirements of the medical student or the practitioner reading for the Public Health diploma. The demands of the syllabus, in this regard, are fully provided for in the work.

A TEXT-BOOK OF MEDICAL JURISPRUDENCE AND TOXICOLOGY. By JOHN GLAISTER, M.D., D.P.H.Camb., F.R.S.E. Third edition. With 137 illustrations and 1 coloured plate; pp. xv + 857. Price 15s. net. Edinburgh: E. and S. Livingstone, 1915.

In this, the third edition of the author's work, certain new features have been incorporated: a short description is given of the duties, the statutory powers, and of the penal resolutions of the General Medical Council. Some rearrangement of the chapters has also been made in respect to curtailment and extension, and new illustrative cases have been added. The whole work has been brought up to date, while reader reference to the subjects dealt with has been secured by a more detailed and complete index.

STUDIES IN QUESTIONS RELATING TO EYE-TRAINING. By WILLIAM PHILLIPS, M.A. Pp. 138. Price 1s. 6d. net. London: Blackie and Son, Ltd., 1914.

This small volume is one of the most recent which the publishers have issued in their "Library of Pedagogics." Its object is to discuss whether the efficiency of the eye as an optical instrument can be increased by training or special exercises. The subject is variously dealt with in several chapters, some of which seem, indeed, beyond the range of the scope of the work. Of these, mention may be made of "Peculiarities in the Vision of Certain Forms of Life other than Human"; "Woman's Supposed Special Sensitiveness to Colour Differences"; "The Supposed Acute Sensibility of the Blind and Deaf." On the other hand, "Eye-training and Myopia," an important aspect of the subject, receives a large measure of attention. The author accepts the view that "the kind of myopia which is most prevalent in the schools is not of necessity dangerous or even serious." He claims, however, that no evidence exists to show that any method of eye-training has been successful in reducing the number of myopes or the grade of myopia to which they are subject. The conclusion, generally, at which he arrives is that no special kind of drill or training in schools is necessary for the eyes, provided that the proper hygienic conditions prevail for their use, and, whenever necessary, they receive proper medical attention.

SWANZY'S HANDBOOK OF THE DISEASES OF THE EYE AND THEIR TREATMENT. Edited by LOUIS WERNER, M.B., F.R.C.S.I. Eleventh edition. Illustrated; pp. xvii + 646. Price 12s. 6d. net. London: H. K. Lewis, 1915.

In this new edition, the first which has appeared since the death of Sir Henry Swanzy, the editor has carefully maintained the general plan and character of the book. Complete revision of the text, however, has been carried out, and the various sections brought up to date. This has involved the incorporation of much new matter, without, at the same time, adding much to the increase in the number of pages. The chapter on the pupil, omitted from the last edition, has been restored. The section on nystagmus has been altered and amplified, and now includes a brief account of vestibular nystagmus. The trephine operation for glaucoma has been dealt with in greater detail, and numerous minor improvements and additions have been made. The volume also contains many new illustrations.

WATER SUPPLIES : THEIR PURIFICATION, FILTRATION, AND STERILISATION. By SAMUEL RIDEAL, D.Sc.Lond., and ERIC K. RIDEAL, B.A.Cantab. Illustrations, 24 plates; pp. xii + 274. Price 7s. 6d. net. London : Crosby, Lockwood and Son, 1914.

The science and practice of water purification and testing of drinking water have been largely developed in recent years, especially by experience in the United States, and this book therefore embodies many comparatively new methods—chemical, physical, and bacteriological—bearing upon the ever-changing problems of collection, storage, protection, and distribution. The best examples of the latest results of research applied in actual work in this country and on the continents of Europe and America are described. The first chapter deals with the chemical and physical properties of water which may approximate, practically, to the ideal purity, with a sub-chapter upon saline and medicinal waters, including interesting tables of their radio-activity. According to these latter the waters of Brambach, in Saxony, show a radium content of 2,270 Maché units, which is astonishing as compared with the modest 155 units of the celebrated Gastein, the 126 of Baden-Baden, 38 of Karlsbad, or the 26 of Yellowstone Park, California. The chapter on contaminations by organic matter, soluble or in suspension, living or dead, is illustrated by photomicrographs of typical impurities, with accounts of their origin and behaviour. The chapter discussing sources of supply deals with and compares wells, tube or dug, springs, streams or rivers, rain, and the artificial distillation of sea-water; also the saturation line of ground supply, testing for pollution, and the construction of tanks. A historical review of human settlements as related to natural water supplies prefaces the chapter on distribution; the evolution of modern modes of collection, storage, and delivery being traced. There is a discussion, with a table, of the potentials in volts of electrical loss allowed on tramway systems in various cities, as affecting the destruction of water-pipes, by solution. The method of protection from electrolytic action, either by currents from lighting or power circuit leakages, so that any water system shall be everywhere at a constant potential, is explained. The engineering provisions for storage in the construction of dams and reservoirs, the problems of preliminary purification by various kinds of filtration, natural or chemically assisted sedimentation and coagulation, are fully described. Determination of the "hardness" of waters and methods of softening is discussed, as well as modes of sterilisation—chemical, physical, bio-chemical (or bacteriological), by electrolysis, ozone, and the ultra-violet or mercury vapour electric light, or by a combination of these. The final chapter is devoted to the technique of the various methods of interpreting and checking the result of the treatment of water by analysis—viz., physical tests for temperature, odour, taste, colour, &c. Four appendices contain tables exemplifying the ultimate and detailed analysis of typical potable waters from many well-established municipal supplies, embracing every variety of source; and of sewage effluents, treated and untreated, from tainted streams, sewage farms, and factories. Also analyses of boiler incrustations from different waters, characteristics of water-bearing rocks, and ferro- and plumbosolvent waters. Each chapter has its own bibliography appended, and there is at the end a short special index to them of the names of authorities, in addition to a general index.

FEVER : ITS THERMOTAXIS AND METABOLISM. By ISAAC OTT, A.M., M.D. Illustrated; pp. 166. Price \$1.50. New York : Paul B. Hoeber, 1914.

This book is the substance of three lectures delivered by the author embodying his views upon the subject of fever, matured after forty-five years' study and observation as a practitioner and a physiologist. His conclusion is that fever is a neuro-toxogenic process, in the course of which the toxins stimulate the cells, causing increased metabolic change and continued consumption of energy. He submits that there is no increased production of heat during fever, and affirms that to imagine this is so is "ridiculous." In discussing his views, many references are made to the scientific work of others, dealing with pathological and physiological questions, thus introducing points that have a close bearing upon the clinical aspects of disease, in which fever is present. The first lecture mainly deals with the neural origin of heat production; the second with thermolysis, or heat dissipation; and the third consists of the study of malarial fever and metabolism in relation to fever generally.

LEPER HOUSES AND MEDIEVAL HOSPITALS: BEING THE FITZPATRICK LECTURES DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS, LONDON. By CHARLES A. MERCIER, M.D. Pp. 47. Price 1s. net. London: H. K. Lewis, 1915.

These lectures represent an historical sketch of sanatoria, isolation places, and poor-houses, which, under monastic forms, were, from the earliest Christian times, Church and State institutions, and also embody suggestive speculations as to the nature of leprosy. It is well known that houses or settlements for the segregation of lepers were among the first special provisions made for the afflicted; it is not known, however, why, and by what means, that once most prevalent of all diseases became comparatively rare. Dr. Mercier hazards, in the first lecture, the interesting conjecture that as the increase of various manifestations of tuberculosis kept pace with the contemporary diminution of leprosy—so that to-day pulmonary consumption is the main world's scourge—an explanation of the phenomena may possibly be found in the assumption of the gradual change by evolution of a bacillus. The author points out the very similar characteristics of certain strains of the tubercle bacillus—notably the strain of lupus—with strains of the leprosy bacillus so far as we know it, and their very similar manifestations, as pointing to a common descent. The author gives reasons for at least entertaining the possibility of the hypothesis that the undoubted simultaneous, spontaneous, and inexplicable disappearance of leprosy, and the spread of tuberculosis may be related. The second lecture describes how, during the centuries, prison-like leper houses, partly almshouses, but mostly of a monastic type, became the many-functioned, privileged, and restricted institutions, which for long partook in quaint combinations of the nature of penitentiaries, dispensaries, or hotels for the traveller; in fact, houses of restraint or refuge like our hospitals and infirmaries to-day. The extraordinary bequests of pious or unscrupulous founders, with their recital of minute and endless detail, atonement for greed, promptings of superstitious fear, and vicarious bequests, vividly resemble the red tape and circumlocution of dead hands our Charity Commissioners still have to disentangle.

MANUAL OF INSTRUCTION FOR THE ROYAL NAVAL SICK BERTH STAFF. Printed under the Authority of His Majesty's Stationery Office. Illustrated; pp. vi + 507. Price 2s., crown 8vo. London: Eyre and Spottiswoode, Ltd., 1914.

This "Manual of Instruction" is a text-book of anatomy, physiology, medicine, surgery, and therapeutics, for the use of probationers and others preparing for examinations for higher ratings; and a compendious reference work for instruction at the Naval Hospitals. With the aid of innumerable diagrammatic illustrations the elements of surgical anatomy, with especial reference to the common fractures or dislocations, and operative procedure, are set forth. The main facts of physiology, and the principal phenomena of pathology in typical diseases are recounted. While the interest and imagination of the trained nurse are stimulated by the rationale of treatment being very fully indicated, he is at every point reminded of the line beyond which the most intelligent "first-aid" should not encroach upon the responsibilities entrusted to the fully qualified practitioner. In text and illustration the "Manual" has drawn upon the St. John's Ambulance Association, the Royal Army Medical Corps Training (1911), and Fleet-Surgeon Gaskell's "First Aid in the Royal Navy," for descriptions of bandaging, stretcher exercises, and the technique of many procedures. There are special chapters upon poisons, asphyxia, anaesthetics, cooking for the sick, post-mortem routine, preparations for general actions and for landing parties, descriptive lists of official medicines and instruments supplied to H.M. ships, with brief indications of the use of the former and the care and preservation of the latter. The "blue-book" price of production, made possible by the assistance of the Comptroller of His Majesty's Stationery Office, accounts for the very low price which places such a volume within the reach of all.

HEALTH FOR THE MIDDLE-AGED. By SEYMOUR TAYLOR, M.D., F.R.C.P. Pp. ix + 103. Price 1s. net, foolscap 8vo. London: Methuen and Co., Ltd., 1915.

This small work is compiled as offering to the non-medical average middle-aged person—of intelligence and in fair health—advice upon every-day matters of hygiene which affect

well-being and fitness to longevity. As "middle-aged" the author classes those between the ages of 49 and 63 (following the London physician Southey), placing "maturity" at the age of 45. In justification of a modern view of these prolonged periods Dr. Taylor epitomises in his first chapter, for the comfort and encouragement of those no longer young, the latest figures derived from actuarial experiences of life insurance companies. One interesting generalisation he points to is that survivors to the age of 65 have a better expectation of life—in some respects—than the average middle-aged; hence the importance of care in the "middle age." The subjects dealt with are: Diet (Alcohol, Tea and Coffee, with Tobacco, having separate special chapters), Clothing, Ventilation, Cleanliness, Sleep, Exercise, Recreation, and Rest. The author does not absolutely condemn alcohol, but urges temperance in all things excepting sleep and fresh air.

CUNNINGHAM'S TEXT-BOOK OF ANATOMY. Edited by ARTHUR ROBINSON, M.D., F.R.C.S. Ed. Fourth edition, revised. Illustrated by 1,124 figures from original drawings, 637 of which are printed in colours, and two plates; pp. xxvii + 1593. Price 31s. 6d. net. London: Henry Frowde and Hodder and Stoughton, 1915.

This new issue of Cunningham's "Anatomy" is a revision of the fourth edition, which was published two years ago. Some alterations have been introduced which the advance of knowledge have necessitated, but apart from these and the general revision of the text, no important change is to be noted, such as distinguished the last edition.

THE ALIMENTARY TRACT: A RADIOGRAPHIC STUDY. By ALFRED E. BARCLAY, M.A., M.D., B.C.Cantab., M.R.C.S., L.R.C.P. With 76 illustrations; pp. xvi + 195. Price 12s. 6d. net. London: Sherratt and Hughes.

This book is the second edition of the author's former work, "The Stomach and Esophagus." Having, however, expanded his subject to include the whole alimentary tract, the new title was adopted as more expressive of its scope. Taken as a whole, the volume emphasises the value of radiography in the diagnosis of gastric and intra-abdominal lesions—lesions which belong, as the author states, to that branch of medicine, perhaps the most intricate and difficult. Stress is laid upon the diagnostic results by means of fluoroscopy, derived from the observations of the shadows seen on the screen. "It is," admits the author, "a great deal easier to be a radiographer, taking pictures of opaque meals, than a radiologist, who interprets the shadows that he sees." After discussing the question of technique in the examination of patients, the author proceeds, in further chapters, to deal with such subjects as the diagnosis of affections of the esophagus, the normal stomach, the pathological stomach, gastric ulcer, and hour-glass stomach, the ætiology of gastric and duodenal ulcers, the large and small intestine, &c., and in some concluding observations affirms that "the X-ray method is of some value by itself, but when taken in conjunction with all the other available means of investigation, it becomes the greatest of all aids we possess in the diagnosis of diseases of the walls of the intestinal tract." A tabulation of cases is appended, together with a bibliography, and an index, which might be usefully extended.

Feeble-mindedness: Its Causes and Consequences. By HENRY HERBERT GODDARD, Ph.D. Pp. xii + 599. Price 17s. net. New York: The Macmillan Co., 1914.

This book is intended not only for physicians interested in feeble-mindedness, but also for legislators on the subject. It has been prepared from a mass of laboriously compiled data, and, while it forms a text-book on idiocy, imbecility, and allied social evils, it is mainly devoted to the study of their inheritance. It is interesting to note that the author does not admit hereditary relationship between feeble-mindedness and insanity, but regards the former as a hereditary condition following the Mendelian law; normal-mindedness behaving as a dominant and feeble-mindedness as a recessive character. There are numerous illustrations and heredity charts, one going as far back as six generations, and the whole argument is logically worked out. The volume is well got up.

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SUPPLEMENT

(VOL. VIII, No. 9, JULY, 1915).

NOTES ON BOOKS.

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A CAMPAIGN AGAINST CONSUMPTION: A COLLECTION OF PAPERS RELATING TO TUBERCULOSIS.
By ARTHUR RANSOME, M.D., F.R.C.P., F.R.S. Pp. viii + 268. Price 10s. 6d. net.
Cambridge and London: Cambridge University Press, 1915.

Dr. Ransome has arranged for republication in this book twenty-two contributions made by him during the past fifty years upon the subject of phthisis, or public health questions which bear upon the causes and prevention of pulmonary tuberculosis, together with lectures to local associations. The author's interest in an organized attack upon conditions favouring phthisis and its spread dates back to 1860, when, in Salford and Manchester, he initiated a weekly register of new cases of diseases, including consumption. Returns compiled during twelve years from these statistics were, according to Dr. Ransome, incentives to the more complete "Notification of Disease" subsequently established. As the period covers time before and since the isolation of the bacillus by Koch, it should be interesting to study the effect of a capital discovery upon medical thought. The early recognition by Dr. Ransome of the importance of fresh air, ventilation, limitation of infection, and the need for State control, is significant. Among the personal researches are original observations upon the effects of oxygen, ozone, iodoform, cultivation media, and intra-pulmonary injections. The illustrations include a photomicrograph of a cultivation on wall-paper from the breath at ordinary temperature; maps of districts of Manchester and Salford; and many curve charts of statistics bearing upon phthisis-rates compared in different parts of the United Kingdom. There are also appendices of certain meteorological factors from observations since 1867 at Liverpool, Bidston, and Birkenhead; death-rates between 1851 and 1908 in London, and other statistical information. Some almost forgotten therapeutic facts of suggestive interest are again made available in this collection, recording continuously Dr. Ransome's investigations and literary activity during nearly two generations.

PAINLESS CHILDBIRTH IN TWILIGHT SLEEP. By HANNA RION. Pp. 246. Price 6s.
London: T. Werner Laurie, Ltd., 1915.

This book is summarized on its title-page as "A Complete History of Twilight Sleep from its beginning in 1903 to its present development in 1915, including its successful use in Great Britain to-day, with all the important medical records of the doctors who have

employed the method, as well as the personal accounts of mothers who have experienced painless childbirth." The author, deeply impressed by the extent of the suffering frequently involved in childbirth amongst women of to-day, and the probable effect on the birth-rate of the nervous horror of child-bearing produced thereby, undertook a personal investigation of the scopolamine-morphine treatment. In the course of her researches she visited the Frauenklinik at Freiburg, where Drs. Krönig and Gauss have conducted their experiments, and visited, corresponded with, or studied the published opinions of numerous doctors of several nationalities, notably German, British, and American. The book is definitely intended for the general public, and scientific terms are, as far as possible, simplified and explained. It is frankly propagandist in favour of the treatment, but contains the views of opponents as well as of advocates. There is a list of medical references, but a general index in addition would be a convenience to the reader.

OCCUPATIONAL AFFECTIONS OF THE SKIN. A BRIEF ACCOUNT OF THE TRADE PROCESSES AND AGENTS WHICH GIVE RISE TO THEM. By R. PROSSER WHITE, M.D.Ed., M.R.C.S.Lond. Pp. x + 165. Price 7s. 6d. net. London: H. K. Lewis, 1915.

Occupational affections are of great importance, especially to those practitioners whose lot is cast in the great centres of industrial activity. It has been estimated by careful observers that one-sixth of all cases of skin disease are caused by the occupation of the patient. In this work Dr. Prosser White has made a careful compilation from original articles dealing with eruptions of this type. The book is divided into eight chapters, in which he describes the physical and chemical agents used in the various trades and occupations, and the special characteristics of the eruptions which are produced thereby. The information everywhere is supported by references to the original communications, and these references materially enhance the value of the work. A very full index is appended.

BEDSIDE HÆMATOLOGY. AN INTRODUCTION TO THE CLINICAL STUDY OF THE SO-CALLED BLOOD DISEASES AND OF ALLIED DISORDERS. By GORDON R. WARD, M.D.Lond. Illustrated; pp. 394. Price 15s. net. Philadelphia and London: W. B. Saunders Co., 1914.

The scope of this work embraces, as its title implies, the study of clinical facts by the light of blood examinations in so-called blood diseases and those of allied origin. The author admits a primary difficulty. He affirms that a scientific classification is as yet impossible; hence, for the present, such a classification can only reflect the predilection of an individual author for views and theories to which his bias inclines; nevertheless of his own classification he submits that it is open to all manner of objections—objections based upon a charge of inconsistency from its "very arbitrary" character. The question, however, of this classification difficulty is not one which detracts from the study of so important a subject, in which problems of diagnosis and treatment are primarily concerned. Throughout the volume the author has adopted, in the discussion of the various diseases, a uniform method distinguished by several headings—namely, synonyms, definition, nature, general pathology, allied diseases, ætiology, age and sex, general symptomatology, course, duration, clinical varieties, complications, diagnosis, and treatment—a method which facilitates reference. The index might be, with advantage, expanded, and, for example, oral sepsis and intestinal sepsis, among other subjects mentioned, included.

METHODS OF QUANTITATIVE ORGANIC ANALYSIS; WITH DIAGRAMS. By P. C. R. KINGSCOTT, D.I.C., A.R.C.Sc., A.I.C., B.Sc.Lond., and R. S. G. KNIGHT, D.I.C., A.R.C.Sc., A.I.C., B.Sc.Lond. Diagrams; pp. xvi + 283. Price 6s. 6d. net. London: Longmans, Green and Co., 1914.

The arrangement in this work, adopted by the authors, is based on that of a series of lectures attended by them during the session 1911-12. The first chapter is devoted to the

determination of molecular weight by physical methods, and includes among the latter those of Victor Meyer, Bleier and Kohn, Dumas, Koffmann, and others. "Ultimate Analysis" forms the subject of the second chapter, and "Estimation of Typical Groups" and "Estimation of some Compounds of Technical Importance" the two succeeding ones. A tabular list of the international atomic weights is given at the commencement of the volume. There are various diagrams in the text illustrative of special apparatus.

FIELD HOSPITAL AND FLYING COLUMN: BEING THE JOURNAL OF AN ENGLISH NURSING SISTER IN BELGIUM AND RUSSIA. By VIOLETTA THURSTAN. Maps; pp. 188. Price 2s. 6d. net. London and New York: G. P. Putnam's Sons, 1915.

To the fact that, after strenuous months in the first lines with a mobile unit in Belgium and Poland, sharing trenches and dug-outs with soldiers regardless of danger, Miss Thurstan was wounded by shrapnel and disabled by pleurisy we owe her lively account; written, in fact, on the spot during an enforced and much resented short rest. The author was commissioned by the St. John Ambulance Committee to take charge of a party of nurses being sent to Belgium. The story opens with a tribute to the warmth of their welcome in Brussels by the now famous Burgomaster Adolphe Max, and their speedy exodus to Charleroi, as a carnage centre when the German force swept in. When the wounded and prisoners were taken back to Germany, the party, with other civilians, though told they would be put over the Dutch frontier, were actually escorted in the slow hospital trains through Cologne, Düsseldorf, Münster, and Hamburg, to Denmark! Permission being obtained to serve in Poland and Russia, the party at once started, *via* Sweden and Lapland, to Petrograd. The war-time conditions observed on a memorable journey are described by the author, who, making common cause with the Russian Sisters at Warsaw, and working in several large hospitals there, was soon in the thick of the terrible fighting at the bombardment of Lodz. The rapid fluctuations of the army fronts, necessitating daily or hourly sudden advances or retreat by the mobile units of the flying ambulance columns, are graphically portrayed. The distinctions between even an emergency or temporary field hospital and the actual flying column, in the nature of their respective requirements, outfit and personnel, are very usefully explained. The real flying unit boasts—like any corps of the army itself—of being ever ready to go anywhere, and do anything, practically living in wagons, motor-cars, slow trains, or afoot on forced marches. In this exacting service the highly trained English nurses shirked no difficulty or danger, and never spared themselves the greatest sacrifice of personal comfort. Whether half-starved or nearly frozen in the reeking verminous pest-houses made to do duty for "hospitals," it is seen that "first-thought" like "first-aid" for the suffering combatant is the supreme consideration. Many pages of this record are painful, horrible reading, though the writer, in confessing to a certain "inexplicable happiness" in her "beloved column on the open road," is not blinded to the wickedness of war. Her book is not a systematic survey of conditions as they have been or might be, being, as she says, noted on odd scraps of paper far from all reference books, when wounded or ill, and amid the turmoil of battle and marching; but in its side-lights on essential facts, and broad, sane outlook, it conveys much of interest and instruction. We are promised a continuation after convalescence from the disability which, soon after last Christmas, interrupted active work.

MY EXPERIENCES AS A GERMAN PRISONER. By L. J. AUSTIN, F.R.C.S. With 12 illustrations; pp. 158. Price 2s. net. London: Andrew Melrose, Ltd.

The author, a member of the British Red Cross Society, who joined the first Belgian unit, recounts in a popular narrative the experiences of himself and his colleague (Dr. Elliott) as prisoners among the Germans during the first five months of the War. The writer and his friend had the misfortune to be captured within their first few days in Belgium, when they ran into the main German army marching on Namur. They soon discovered that "the sanctity of the Red Cross was an ideal of the past," and the author tells how, although in

uniform, unarmed, and provided with all descriptive official passports, papers, &c., they narrowly escaped summary execution. It appears to have been inconceivable to even an educated German army medical officer that men could be really doctors unless they held a certificate of State examination. All their papers were taken from Mr. Austin and Dr. Elliott, never to be restored or seen again; so that, naturally, during many months of subsequent travel and re-transportations from one place of detention to another, without any documentary identifications, they were repeatedly re-examined by courts-martial, and subjected to constant suspicion and indignity. Some weeks of solitary confinement were first spent by Mr. Austin in a small dark cell at Cologne, in an old military prison. Described officially as "spies in some unknown uniform," these Englishmen were watched and fed through trap-doors by silent warders like any dangerous, hardened jail-birds. They were later confined at the special places of internment for officers at Torgau, Burg, and Magdeburg. Early in the War, Mr. Austin tells us, it was confidently reported and widely believed in Germany that there was rebellion in all the Colonies, civil war in Ireland, riot and ruin in London, and a general disruption of our Empire. There is also a just appreciation of the occasional courtesies received at the hands of the enemy. The author was among a few who (selected it appears by lot) were released to be exchanged through Holland, mainly by the instrumentality of the United States authorities. The dozen sketch illustrations, which as free-hand, hasty impressions depict scenes in prison and canteen life, have already appeared in the *Illustrated London News*.

THE MEDICAL ANNUAL. A YEAR BOOK OF TREATMENT AND PRACTITIONER'S INDEX, 1915. (Thirty-third year.) With 149 illustrations and 71 plates; pp. cxx + 959. Price 10s. net. Bristol: John Wright and Sons, Ltd., 1915.

The preparation of this edition of the Annual for the current year involved considerable difficulties, owing to the war. The military engagements of the contributors left but little time for literary labour; their contributions, therefore, were necessarily delayed, and this it is which explains the lateness of the issue of the volume. The main features of the previous editions are maintained, but certain changes may be noticed. For some of these the publication of a new edition of the "British Pharmacopœia" is responsible, and articles have been inserted dealing with its alterations and additions, while the drug references throughout the sections have been unified accordingly. Bearing upon the war are three articles: one on "Modern Naval Surgery," one on "Military Surgery," and the third on "Antiseptics in War, and the Method of their Application." There is a very complete index, and there are numerous plates and illustrations.

A GUIDE TO THE USE OF TUBERCULIN. By ARCHER W. R. COCHRANE, M.B.Lond., F.R.C.S.Eng., and CUTHBERT A. SPRAWSON, M.D., B.S.Lond., M.R.C.P. With charts; pp. vi + 181. Price 5s. net. London: John Bale, Sons and Danielsson, Ltd., 1915.

The aim of the authors has been to provide some plain rules for the practical employment of tuberculin in diagnosis or treatment, for the employment of tuberculin in a given case, and for estimating the first doses and the regulation of subsequent ones. Drs. Cochrane and Sprawson have compared their separate and individual institutional experience, and their joint work in carefully recording the effect of different kinds and strengths of tuberculin as producing local, focal, or general reaction, and upon the course of tubercular disease, are set out in numerous chart diagrams of many cases extending over short and long periods. They regard as indisputable the evidence that tuberculin not only may, but should be employed in nearly all cases, with suitable precautions as to dosage; they are certain it is often curative and need not be harmful. Method and not principle must be blamed for any failure. Very minute doses are enjoined at first in most cases, and observed reactions are not considered necessary. They use the cubic millimetre, or c.mm., for prescribing doses and their strength, instead of decimals of the c.c. or *mil.* as now more properly termed. Dilutions as high as 1 in 500 to 1 in 10,000 are mentioned, and the technique of their

preparation described. Some fourteen varieties of tuberculin in use, or mixtures, are mentioned, of which several are considered of value, and to be used in some cases together; that is, in a certain prescribed order. In discussing the various effects of doses, the authors use the terms "supersensitivity" and "subsensitivity." As to the relative cost of different tuberculins, it is pointed out that perhaps tuberculin, rationally used, is the cheapest of all medicines. There are chapters on "A Working Hypothesis of the Action of Tuberculin," "Pulmonary Tuberculosis in Children," "Contra-indications to Tuberculin Treatment," and "Tuberculosis other than Pulmonary."

THE OPERATIVE TREATMENT OF CHRONIC INTESTINAL STASIS. By Sir W. ARBUTHNOT LANE, Bt., M.S., F.R.C.S. Third edition. Illustrated; pp. 201. Price 10s. 6d. net. London: James Nisbet and Co., Ltd., 1915.

In this new edition of the author's work on "Chronic Constipation" he has changed the title to "Chronic Intestinal Stasis." His thesis, which practical experience has so often endorsed, of the vulnerability of the tissues to intestinal toxæmia is further elaborated in the volume. The importance of the subject receives added weight from his claim that cancer is a result of chronic intestinal stasis. He illustrates the case of a toxic woman. The toxæmia "manifests itself usually as an infection of the mucous membrane and muscle of the uterus, and is called endometritis or metritis. The continued presence of this infection brings about many troublesome consequences, the last link in the chain being here, as elsewhere in the body, cancer. Cancer is the last chapter in the three-volume story of 'Chronic Intestinal Stasis.'" In the section on the treatment adopted by the author, many illustrative cases are given of divers diseases being benefited by the operative methods associated with his name. The volume also contains chapters contributed by Dr. Jordan, Dr. Nathan Mutch, and Sir James Mackenzie, discussing the subject from the radiological, bacteriological, chemical, and clinical aspects respectively. There is no index.

ANIMAL EXPERIMENTATION AND MEDICAL PROGRESS. By WILLIAM WILLIAMS KEEN, M.D., LL.D. With an Introduction by CHARLES W. ELIOT, LL.D. Pp. xxvi + 312. Price 7s. 6d. net. Cambridge, U.S.A.: Houghton Mifflin Co., 1914.

This volume consists of the collection of the author's papers, previously published in various journals, upon the subject of experiments on animals, showing the influence for good which has resulted therefrom upon the progress of medical science. In America the active anti-vivisectionist propaganda are apparently comparable, in force and aggressiveness, with those which prevail in this country, and the author has taken a leading part in opposing them. He uses the word "vivisection," but disapproves of it, as applied to animal experiments generally, inasmuch as it implies "cutting a living animal," whereas only about 6 per cent. of all the experiments upon animals are strictly vivisections. The book contains thirteen papers, preceded by a short introduction by Dr. Charles W. Eliot, of Harvard University, in which the misstatements of the anti-vivisectionists are exposed, and the value of experimental research vindicated. In the author's opinion "the anti-vivisectionists are enemies of animals and of the whole human race," a fact which his volume does much to prove. The Bureau on Protection of Medical Research in America has published a series of twenty-six pamphlets dealing with the subject; the titles of these the author includes in his preface. It is evident, therefore, that the anti-vivisectionists are not allowed to have entirely their own way in America.

THE TUBERCULOSIS NURSE: HER FUNCTION AND HER QUALIFICATIONS. A Handbook for Practical Workers in the Tuberculosis Campaign. By ELLEN N. LA MOTTE, R.N. Introduction by LOUIS HAMMAN, M.D. With two illustrations; pp. xxiii + 292. Price \$1.50 net. London and New York: G. P. Putnam's Sons, 1915.

Miss La Motte has brought into a comprehensive survey the varied aspects of sociological, political, and medical questions presented to her during many active years as Nurse-in-chief

of the tuberculosis division of the public health department of a progressive civic community with the prestige of containing the well-known Phipps Foundation and Dispensary of the Johns Hopkins University Hospital. The City of Baltimore was among the first to organize an efficient visiting nurse association, the services of which were so highly appreciated that, from private enterprise, it rapidly passed into a branch of the local government. Through the sentiment created by the Maryland State Tuberculosis Association, an almost independent division of the service was formed to cope with the great white plague, armed with all prophylactic measures. Dr. Hamman, the physician in charge, considers the experience gained justifies a record of the machinery and its results, which the author has embodied in this book. The material is gathered, of course, only locally, under conditions purely American; yet perhaps on a sufficient scale. The lessons frankly, but regretfully, acknowledged are that the tuberculous cannot be isolated in their homes, and cannot be "cured" in or out of sanatoria. But, so much admitted, there may be amelioration, and arrest of the disease, in the individual, with the still higher object of protecting the community. The evidence is that, under continuously maintained conditions, the lesion is very amenable to treatment, so that many patients "recover" so far as to remain comparatively well. The interesting results of statistics so fully compiled in a large settled town in which notification and registration was almost complete, has been, first, that while sanatorium "recovery" is almost invariably followed by relapse if vigilance is relaxed, yet the actual deaths from pulmonary tuberculosis during five years in a practically stationary population fell from 1,400 (in 1909) to 1,129 (in 1913). Miss La Motte finds this "heartbreakingly slow" after so much concentrated strenuous work—but there is reason to believe that the rate had been continuously rising during previous years. The machinery of the nursing service of Baltimore is minutely described. The difference obtaining in poor law as between Great Britain and the United States renders much of the book inapplicable to other countries, but the full details into which the author enters respecting the duties, responsibilities, and rewards of the highly trained tuberculosis nurse apply to the organization of such work everywhere. Not only transatlantic, but other experience (as admitted in the preface), proves that educated women greatly assist in the often thankless task of silently rounding up a tainted flock, and by subtle segregation protect the whole community against itself.

THE CLINICAL ANATOMY OF THE GASTRO-INTESTINAL TRACT. By T. WINGATE TODD, M.B., Ch.B., F.R.C.S.Eng. Illustrated; pp. xii + 264. Price 6s. net. Manchester: University Press. London: Longmans, Green and Co., 1915.

The author of this book was formerly Lecturer on Anatomy in the University of Manchester. He is now Professor of Anatomy in the Western Reserve University, Cleveland, Ohio. Doubtless, however, to show that he has not forgotten his connexion with his old University, he has obtained as his publishers the University Press of Manchester. The contents of the volume embrace the substance of the course of lectures on the alimentary canal, as given in association with his present professorial appointment, and the work has been planned, with the primary intention of providing a handbook for examination purposes, to include anatomical facts, which, so far, have not been incorporated in anatomical text-books. Incidentally, we may note that no attempt has been made to introduce the Basle nomenclature. Of this he says, "only a few carefully guarded terms are used, for the confusion introduced by that premature and ill-considered attempt to revise anatomical nomenclature is as great in America as it is in Britain." The first pages include descriptions of the abdominal wall and the diaphragm; other chapters, out of the eleven of which the book consists, deal with the peritoneal cavity, the features of the gastro-intestinal tract, the stomach, the cæcum, appendix and proximal colon, the distal colon, rectum and anus, with a note on the ileo-pyloric reflex. A full bibliography is added containing 355 references. Reproductions of radiograms are used to illustrate the text.

MATERIA MEDICA AND PHARMACY FOR MEDICAL STUDENTS, WITH AN APPENDIX ON INCOMPATIBILITY. By REGINALD R. BENNETT, B.Sc.Lond., F.I.C. Third edition. Pp. xxii + 248. Price 4s. 6d. net. London: H. K. Lewis, 1915.

The exceedingly concise text-book compiled by the late Lecturer on Pharmacy to University College Hospital, Mr. Bennett, in 1908, has, with the help of the present Lecturer, Mr. C. H. Hampshire, been brought up to date, and revised to conform with the new British Pharmacopœia of 1914. Confined almost entirely to official drugs and their preparations, a distinctive feature of the book is a systematic classification of remedies into three large groups, general, local, and extraneous, with their classes and sub-sections. The briefest possible description is given of each item, omitting secondary or subsidiary applications or effects; but furnishing the student with what is requisite for the examination. Prescription writing is not discussed, and the author explicitly emphasizes the necessity of a simultaneous course of practical pharmacy and dispensing. The appendix on incompatibility only deals with chemical or physical incompatibility in the mixture of medicinal substances—not entering into the discussion of physiological or therapeutic incompatibles. In addition to full tables of dosage of the usual kind, there is a table of the principal preparations of active bases and potent substances arranged in the order of their *increasing minimum doses*; commencing thus with atropina, $\frac{1}{100}$ to $\frac{1}{100}$ gr., &c., and ascending, singly or in small classes, to remedies given in the largest single dose. There are other condensed tables of standardized strengths, metric conversions, a short Latin glossary, and a general index. The book is of convenient pocket form.

URGENT SYMPTOMS IN MEDICAL PRACTICE. By ROBERT SAUNDBY, M.D.Edin. Pp. 487. Price 7s. 6d. net. London: Edward Arnold, 1915.

It is stated in the preface that this book is intended to be a handy work of reference for the busy practitioner or student who desires to learn quickly, without the labour and delay of consulting several volumes, the significance of a particular symptom, the indications it affords, and the means whereby it may be relieved. It might be described as a short medical dictionary, chiefly of symptoms, but including also some diseases, and a few special tests and signs. Most stress is laid upon diagnosis, pathology not falling within the scope of the book, whilst treatment is discussed very briefly.

THROAT AND EAR TROUBLES. By MACLEOD YEARSLEY, F.R.C.S. Illustrated; pp. 110. Price 1s. net. London: Methuen and Co., 1915.

This is the first volume of a series of little books intended for general readers, dealing in this instance with the throat, nose, and ear. It contains chapters upon the structure and functions of the organs of voice and hearing, upon enlarged tonsils, adenoids, and other disorders which lead to nasal obstruction, the importance of nasal breathing, the care of the voice, and the causes and means of prevention of deafness. The last chapter exposes the frauds perpetrated upon the public by charlatans and quacks by means of plasters, sprays, ointments, ear-drums, and so-called "electrical" appliances which contain no electricity. The contents are written in plain language, free, so far as is possible, from technical terms, and illustrated by several diagrams, which enable them to be understood by the outside public.

THE MUSCULAR SYSTEM. By HAROLD BURROWS, M.B.Lond., B.S., F.R.C.S. Illustrated; pp. viii + 151. Price 1s. net. London: The Scientific Press, Ltd., 1915.

This booklet contains in small compass the most important features of the anatomy of the skeletal muscles, together with their functions and nerve supply. The classification adopted by the author is unusual, inasmuch as it is based upon function instead of upon anatomy—for instance, the muscles are individually mentioned under the heading of the joint upon which they act. The illustrations are copied from those appearing in "Quain's Anatomy."

NOTES ON THE NERVOUS SYSTEM. By EDWIN L. ASH, M.D.Lond. Illustrated; pp. viii + 98. Price 1s. net. London: The Scientific Press, Ltd., 1915.

The intention of the author has been to provide nurses and students of elementary anatomy and physiology with an epitome of the main lines on which the nervous system is constructed, and of the leading principles governing its functions; and for the special information of nurses a few notes explanatory of the more common diseases of the brain and spinal cord have been included. There are several diagrams.

GUIDE TO MIDWIFERY. By DAVID BERRY HART, M.D., F.R.C.P.E. Second and cheaper edition. Illustrated; pp. xxiv + 765. Price 12s. 6d. net. London: William Heinemann, 1915.

This "Guide to Midwifery," a cheap reprint of the edition published in 1912, is divided into two parts, the first of which, forming by far the larger portion of the volume, contains a succinct account of midwifery from the modern standpoint; the remaining part, entitled "Notes and Discussions," being devoted to chapters elucidating difficult points, and giving summaries of new operations and modern views and theories. Specially interesting among these is the discussion upon "Evolution in Obstetrics," in which the author gives his own conclusions on the relationship to embryology of the theories of Darwin, Weismann, and Mendel. There is a useful bibliography of obstetrical literature, and a large number of illustrations, many of which are original, while others have been reproduced from various atlases and monographs upon the subject. The work is dedicated to James Young Simpson, James Matthews Duncan, and Robert Lawson Tait, at once reminding the reader of the flight of time and of the progress made in the art of midwifery within recent years; and as a foreword the author has selected a quotation from Huxley, in which occurs a sentence which should be committed to memory by every student of medicine: "Nothing is truer than Harvey's dictum, that those who read without acquiring distinct images of the things about which they read, by the help of their own senses, but conceive mere phantoms and idola."

POSOLOGICAL TABLES; APPENDIX ON POISONS; INDEX OF DISEASES AND MEDICINES ARRANGED ACCORDING TO THEIR ACTIONS. By WILLIAM CRAIG, M.D., C.M., F.R.S.E., F.R.C.S.Ed. Fourth edition; pp. 132. Price 1s. Edinburgh: E. and S. Livingstone, 1915.

This epitome, containing in tabular arrangement all the medicines comprised in the British Pharmacopœia, 1914, with their doses, uses, and preparations, is intended for the convenience of the student who, when attending hospital out-patient practice, can find at once in the index of diseases an appropriate remedy for each affection, and in the posological tables the dosage and method of administration. The alterations as compared with the British Pharmacopœia, 1898, the Imperial and metric weights and measures, a list of incompatibles, an appendix on poisons, and a table of the principal medicines arranged according to their therapeutical actions, complete this handy waistcoat-pocket compendium.

TOWN PLANNING: WITH SPECIAL REFERENCE TO THE BIRMINGHAM SCHEMES. By GEORGE CADBURY, jun. Illustrations and maps; pp. xvi + 201. Price 7s. 6d. net. Second impression. London: Longmans, Green and Co., 1915.

Many aspects of the problems of housing and town planning, with which the name of Cadbury is so closely associated, are dealt with by Mr. George Cadbury, jun., in this book, dedicated to his father. The volume is a practical guide to the Act of 1909; and experiences already gained of the interpretation, administration, and limitations of the Act and previous similar ones at Greater Birmingham, Letchworth, and other places, are recorded by Mr. Cadbury in a form useful to medical officers and practitioners (especially those on insurance panels), as well as to local authorities, statesmen, and legislators. By the light of vital statistics now available of the towns and suburbs where, in addition to those of the great Public

Health Act of 1875, the powers granted by town planning enactments have been taken advantage of, it is very striking to compare the figures of infant mortality and the general death-rate with the averages of less favoured places. For though Letchworth, for instance, is a busy manufacturing town, with forty different industries, and a population of 8,000 drawn from congested centres, the infant and total death-rate per 1,000 is respectively only 50·6 and 6·1, against the terrible 145·0 and 14·7 of Burnley, or the 125 and 18 of Liverpool or Shoreditch. It is pointed out that town planning, as the name denotes, is mainly confined to the ordering and construction of main roads, or national highways, and due subordination of minor roads and streets or open places; and the hygienic and economic advantages thus accruing are illustrated. The author quotes the Reports of Commissions which have visited other countries for investigations into town planning. His nine chapters deal with the main principles of modern legislation, the machinery for taking advantage of the present Acts, the relative functions of the local bodies or private enterprise and the Local Government Board, the allocation of sites, limitation and distribution of houses to area, gardens, recreation places, parks, allotments, public health and social considerations. There are a number of half-tone pictorial illustrations, maps, plans, and drawings. There are appendices embodying the main governing clauses of the Act of 1909, with certain schedules, and specimen documents passing between municipal and governmental departments in developing the East Birmingham scheme of 1913.

HOSPITAL HANDBOOK IN ENGLISH AND FRENCH. By H. MEUGENS. Pp. 238. Price 1s. net. London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd., 1915.

Though called a hospital handbook, this is in reality a pocket English-French dictionary of those words and phrases which occur in ordinary conversation. It further contains a list with their French equivalents of the common forms of drugs and dressings, and of the weights, measures, and coinage, making it a useful guide for doctors, nurses, dressers, and others who are unfamiliar with the French language.

INFANT MORTALITY. By HUGH T. ASHBY, B.A., M.D., B.C.Camb., M.R.C.P.Lond. Pp. x + 229. Price 10s. 6d. net. Cambridge University Press, 1915.

This book deals with the causes of infantile mortality, and all the various means which have been adopted more recently to reduce the death-rate and raise the standard of infant health. Such causes as poverty, lack of intelligence on the part of the mother, improper feeding, home surroundings, alcohol, and the employment of married women, are fully discussed. The counteracting measures which have been adopted in this country and abroad—such as health visitors, infant welfare centres, infant milk depôts, and day nurseries—are described with great minuteness. Reference is also made to the recent Acts of Parliament, and as to the best means of utilizing them in the conservation of infant health. While the book contains much that is of interest to medical men, it is written more especially for the benefit of lay readers and public health workers, being one of the Cambridge Public Health Series.

A HANDBOOK OF MEDICAL DIAGNOSIS. In four parts. For the use of practitioners and students. By J. C. WILSON, A.M., M.D. Fourth edition. Illustrated by 427 woodcuts and 14 coloured plates; pp. xxii + 1441. Price 25s. net. Philadelphia and London: J. B. Lippincott Company, 1915.

The first part of this large volume is chiefly devoted to medical topography and general rules for examination and note-taking. The second part, occupying more than 300 pages, deals with the methods of examination, by various instruments, in the different systems of the body; and, by chemical or microscopical means, of the blood, urine, sputum and transudates, &c. The third part, of about 200 pages, entitled "Symptoms and Signs," describes very fully all the deviations from health which are to be noted clinically, whether in structure or function, in every part of the body. The fourth part takes up the

remaining 800 pages. It treats of the "Clinical Applications," and it gives us the diagnosis of all the diseases commonly described in a text-book of medicine, in the grouping and order usually employed. Thus more than 200 pages are devoted to the specific infections, numbering forty-two. These are followed by the diseases caused by animal parasites, chronic intoxications, constitutional diseases, diseases of the digestive system, of the respiratory system, and so on. In the account of each disease the writer does not confine himself to diagnosis, but gives generally a full account of the ætiology, symptomatology, complications, and sequelæ. The diagnosis is divided into "direct" and "differential," and is succeeded by a short note on prognosis. In this way as many as 36 pages are given to typhoid fever, 36 to tuberculosis, and 22 to variolous diseases. Indeed, this part of the work differs from a text-book of medicine chiefly in the absence of any section on treatment. The book is very well illustrated by figures in the text, and there are excellent coloured plates of blood corpuscles, of the fundus of the eye as seen with the ophthalmoscope and of malarial parasites.

AMOEBIASIS AND THE DYSENTERIES. By LLEWELLYN POWELL PHILLIPS, M.A., M.D., B.C.Cantab., F.R.C.P.Lond., F.R.C.S.Eng. Pp. xi + 147. Price 6s. 6d. net. London: H. K. Lewis, 1915.

This work, by the Professor of Medicine in the Egyptian Government School of Medicine, Cairo, and Senior Physician to the Kasr-el-Ainy Hospital, is a practical and very readable account of the different forms of dysentery, or of the numerous "dysenteries" caused by different organisms. The term "amoebiasis," of course, implies infection with amœbæ, which may attack not only the intestines, causing amœbic dysentery, but also the liver, lungs, and brain, producing in those organs lesions of a specific kind, which are called abscesses, but whose contents are very different from the pus resulting from more familiar pyogenic organisms. Rarely indeed amœbæ have caused also parotitis, abscess of the spleen, cystitis, and salpingitis. The dysenteries are divided by Dr. Phillips, as is now usual, into those due to protozoa and those due to bacteria. Of the former, that which is due to amœbic infection, or amoebiasis, is the more familiar, and receives the first and most attention in this book. The other protozoa which may give rise to dysentery are the *Balantidium coli*, causing "ciliate dysentery" as a part of balantidiasis; *Lamblia intestinalis*, and other flagellates causing "flagellate dysentery"; *Bilharzia hæmatobia*, which causes quite specific lesions in the large intestine; and the organisms of kala-azar and of malaria. Ciliate, flagellate, and bilharzial dysenteries are adequately described. The last chapter is devoted to the bacillary dysenteries, of which asylum dysentery is one, and in it are described the various bacilli concerned, their toxins and antitoxins, their agglutination characteristics, and their relations to one another. The book ends with a full bibliography, classified under the different headings above indicated.

SANITATION IN WAR. By Major P. S. LELEAN, F.R.C.S., D.P.H., R.A.M.C. With an Introduction by Surgeon-General Sir ALFRED KEOGH, K.C.B., M.D., F.R.C.P. Illustrated; pp. xi + 267. Price 5s. net. London: J. and A. Churchill, 1915.

This is a small khaki-coloured pocket-book with rounded corners, consisting of a course of lectures delivered at the R.A.M.C. College with special reference to the present war, but illustrated by experiences of other campaigns. An enormous amount of information on a great variety of subjects is compressed into the 267 pages. But though the matter is concentrated, the descriptions are clear and the language piquant. The ground traversed may be gathered from the headings of the chapters: I, Physical Fitness for War; II, Anti-typhoid Inoculation; III, The March; IV, Sickness in the Army; V, The rôle of Insects in War; VI, Medical Organization and Administration in the Field; VII, Field Conservancy; VIII and IX, Water and Water Supplies. But these give little idea of the scope of this small volume—e.g., one is surprised to find a description of the geological formations of Northern France and Belgium. There are many bold and intelligible diagrams, and a good index.

INTERNATIONAL CLINICS: A QUARTERLY OF ILLUSTRATED CLINICAL LECTURES AND ESPECIALLY PREPARED ORIGINAL ARTICLES. Edited by HENRY W. CATTELL, A.M., M.D.Phila., U.S.A. With the Collaboration of CHAS. H. MAYO, M.D.Rochester, and others. Vol. I, Twenty-fifth Series, 1915. Illustrated; pp. ix + 303. Only sold in complete sets of four vols., 35s. net per annum. Philadelphia and London: J. B. Lippincott Company, 1915.

This quarterly is, at all events on this occasion, essentially a record of American opinion and experience. There are indeed two articles from English sources to keep up the international idea, one by Sir William Osler and the other by Dr. Batten, but all the other contributors hail from the United States. There are ten communications under the heading *Diagnosis and Treatment*. These are followed by reports of visits to medical and surgical clinics, and other clinical matters. There is a discussion of the Medical-Eugenics problem, and a long account of the progress of medicine during the year 1914.

DIABETES MELLITUS. Designed for the use of Practitioners of Medicine. By NELLIS B. FOSTER, M.D. Pp. 243. Price 12s. 6d. Philadelphia and London: J. B. Lippincott Company, 1915.

In this book the author, Assistant Professor of Medicine in Cornell University, has attempted a critical presentation of the state of our knowledge of diabetes mellitus, derived from the extensive literature of the subject. Much of this literature has been published in journals devoted to chemistry or to physiology, which are not commonly read by clinical physicians, and hence may be now usefully brought before them. It presupposes on the part of the reader some acquaintance with the subject, and is directed to the discussion of debateable points, with which the subject bristles, by the light of modern research. It is inevitable that much of the matter is viewed from the chemical standpoint. After a section on normal metabolism, the author deals with glucose in the animal body, experimental glycosuria, and acidosis. Under Symptomatology he devotes a good deal of attention to coma and to theories of its production. There is also a short chapter on renal diabetes, or the occurrence of glycosuria attributed to increased permeability of the kidney, on the grounds that the amount of urinary sugar is not influenced by the carbohydrates ingested, and that there are none of the typical diabetic symptoms. The treatment of diabetes is thoroughly discussed, with its two objects—one, the restoration of the function of utilization of sugar, by limiting the carbohydrate ingestia and lessening the strain upon this function; the other, the avoidance of acidosis, which may result from a too great limitation of the carbohydrates. The means of attaining these two objects and adjusting a sometimes very delicate balance are fully dealt with. The volume ends with a chapter on the identification of the different kinds of saccharine bodies.

THE BIOLOGY AND TREATMENT OF VENEREAL DISEASES, AND THE BIOLOGY OF INFLAMMATION AND ITS RELATIONSHIP TO MALIGNANT DISEASE. By J. E. R. McDONAGH, F.R.C.S. Plates, 54; pp. viii + 625. Price 25s. London: Harrison and Sons, 1915.

The opening chapters deal with the *Leucocytozoon syphilidis* which, in the author's opinion, is the cause of syphilis—the *Spirochaeta pallida* being, in his opinion, merely the adult male of a complicated life-cycle. Considerable proof has been brought forward to substantiate this view, of which the most important is the chemistry of the organism. He points out that the acceptance of the *Leucocytozoon syphilidis* explains all the problems of syphilis which have hitherto remained enigmas; such as, for instance, conceptional syphilis, the origin of tabes, general paralysis of the insane, &c. The next few chapters deal with the technique of the Wassermann reaction, its interpretation, and also its rationale. This is the first attempt to unravel the *modus operandi* of the reaction, which, as everybody knows, has up to the present remained unsolved. The author shows that it is a physical reaction, and not in any way specific. Complement and antibody are considered to be the same

substances in one, which, if correct, will simplify the theory of immunity considerably. In the same chapter an explanation is also given of Abderhalden's test. The clinical aspect of syphilis is next considered, and several new suggestions are advanced, which throw light upon the way in which syphilis attacks the central nervous system. The author provides a rational explanation of the action of chemotherapy, and several suggestions are made as to the lines upon which future research work in this direction should run. The chapters on syphilis end with a full description of its treatment, with the toxic symptoms of salvarsan and neo-salvarsan, and with a detailed description of the various drugs which are in general use. Ulcus molle and its complications are next described; then follows gonorrhœa and its complications, a special chapter being devoted to its treatment by vaccines. The subsidiary venereal diseases are next dealt with, such as Condyloma acuminatum, Molluscum contagiosum, Herpes genitalis, Granuloma inguinale, Induratio penis plastica, and Pediculosis pubis. The three following chapters, which end the first part of the book, are devoted to Sexual Neurasthenia, Venereal Disease and Marriage, and Venereal Disease and Public Health. Owing to the difficulty of distinguishing, under the microscope, syphilitic inflammation from other forms of chronic inflammation, a novel procedure is adopted, with the idea of making histology simpler and at the same time more interesting. The life-history of the cells met with in chronic inflammation are described in detail; the close connexion between chronic inflammation and malignant disease is fully considered, and several new suggestions are advanced upon the subject. The so-called parasites of cancer are shown to be altered nucleoli of the host's cells, behaving pseudo-parasitically, and a distinction is drawn between embryonic activity and malignancy. Although the book contains much pathological work, which is the outcome of the author's research work and therefore new, the clinical matter has in no wise been neglected, as about 100 cases from the author's practice are described in detail. The book is illustrated throughout with several coloured plates, photographs, and drawings.

STEREO-ROENTGENOGRAPHY OF THE ALIMENTARY TRACT. Sections 1, 2, 3, and 4. By JAMES T. CASE, M.D. Price of the entire set of sections, in boxes, \$36. Troy, New York: The Southworth Company, 1915.

This is a collection of stereoscopic skiagrams mounted on loose cards arranged in boxes. The skiagrams occupy the width of the card at the bottom, the rest of the card being taken up with explanatory text. The arrangement of loose cards is necessary to enable the skiagrams to be examined in a stereoscope; much of the effect of solidity is lost when stereoscopic views are mounted in books, for in that case they can only be inspected by a very primitive hand stereoscope, and usually with poor illumination. The pictures include examples of a large number of disorders of the alimentary tract, commencing with the œsophagus and working through to the rectum. Although the work consists of separate skiagrams, the explanatory matter is so arranged that the text forms a fairly continuous story; in many instances we are given a list of diagnostic features characteristic of the disease under illustration. The technical aspects of stereo-radiography are dealt with first. Many portions of the alimentary tract are in constant movement, necessitating rapid exposures, and automatic devices for shifting the tube and changing the plate. Stereoscopic radiography is to supplement fluoroscopy, not to supplant it. The author regards the fluorescent screen examination as the more important; the stereoscopic pictures illustrate the fluoroscopic findings, and enhance the observer's power of interpreting what he sees with the fluorescent screen, aided by manipulation. The work is admirably got up, the stereoscopic illustrations being actual photographic prints pasted on to the cards not half-tone blocks. The stereoscopic effect thus obtained is very good, the pictures of the large intestine especially being most striking in the effect of "relief" they give.

ON MEANS FOR THE PROLONGATION OF LIFE. Founded on a Lecture delivered before the Royal College of Physicians on December 3, 1903. By Sir HERMANN WEBER, M.D., F.R.C.P. Fourth enlarged edition. Pp. x + 235. Price 4s. 6d. London: John Bale, Sons and Danielsson, Ltd., 1914.

As this is the fourth edition, the work is probably already fairly well known, but in each successive edition it has been considerably enlarged. A short introductory section is followed by one on the Natural Duration of Life. Then come in order sections devoted to: (3) The Mode of Life of Long-lived Persons; (4) The Influence of Heredity; (5) Senile Atrophy and the Cause of Death from Old Age; (6) Action of Exercise on the Heart and Blood-vessels; (7) Digestive Organs and Food; (8) Alcohol; (9) Tea, Coffee, Cocoa; (10) Tobacco; (11) Action of the Bowels; (12) the Nervous System, including the influence of mental occupation, cheerfulness, will-power, &c.; (13) Sleep; (14) the Skin; (15) Importance of the Glandular Organs (thyroid gland, &c.); (16) Prevention of Disease, including the influence of education, clothing, climate, &c. The author has endeavoured to lay stress on the "things which count," and the majority of the factors which favour the attainment of old age tend likewise to make men good citizens, and helpful to others as well as to themselves. The motto on the title-page is: "Work, Moderation, and Contentedness are the main sources of health, happiness, and long life."

MENTAL MEDICINE AND NURSING. By ROBERT HOWLAND CHASE, A.M., M.D. Illustrated; pp. xv + 244. Price 6s. net. Philadelphia and London: J. B. Lippincott Company, 1914.

The foreword describes this handbook as an introduction to the study of mental disease, originally designed for the use of pupil-nurses attending lectures on this subject, but extended to meet the needs of busy practitioners and students who find the ordinary manuals too complex and diffuse for ready reference. The author's endeavour has been to make it as practical as possible by omitting secondary matters and disputed questions, thus keeping the volume within convenient limits. The first part deals with the mechanism of the central nervous system, and the second gives a description of the mental processes; and while the two following parts are devoted to disturbances of the senses and to the various psychoses, the last gives particulars of the treatment, nursing, and feeding of patients. There is a table of definitions of the terms in common use, and an appendix which contains details of the methods to be adopted in cases of poisoning; and scattered through the volume are photographs of patients showing the facial stigmata of insanity, and some interesting illustrations of the old-time methods of treatment.

ENCYCLOPÆDIA MEDICA. Edited by J. W. BALLANTYNE, M.D., C.M., F.R.C.P.E. Vols. I and II (second edition). Illustrated; pp. xv + 744. Price per vol. 20s. net. Edinburgh and London: W. Green and Son, Ltd., 1915.

In this, the second edition of the "Encyclopædia Medica," the general plan of the work and the mode of arrangement which characterized the first issue have been retained, and while all the original articles have been revised, some have been entirely rewritten, and additions have been made under the headings of Acute Abdomen in Adults and Children, Abdominal Section, Acidosis, Acromegaly, Adenoid Post-nasal Growths, Alkalies, Antenatal Pathology and Hygiene, and Asepsis in Midwifery. Although the Basle nomenclature has already been adopted in many schools on the Continent, in America, and the British Colonies, as also in an increasing number of English text-books of anatomy, the general practitioners and specialists of this country are still employing the English terms which have been so long familiar, and for this reason the editor has decided not to alter the nomenclature in the present edition; but it is surmised that, by the time the next one is issued, it may be found desirable to adopt the Basle terminology. Meanwhile a table has been inserted, arranged in three parallel columns, in which the reader can compare the ordinary English name with

the Latin term as fixed by the Basle Commission, and with its suggested English equivalent though as yet there is no authoritative English translation of the Basle *Nomina Anatomica*. The illustrations have been increased in number and improved in quality, and the whole presents a valuable reference volume.

A TREATISE ON MATERIA MEDICA AND THERAPEUTICS, INCLUDING PHARMACY, DISPENSING, PHARMACOLOGY, AND ADMINISTRATION OF DRUGS. By RAKHALDAS GHOSH, L.M.S.Cal. Univ. Edited by B. H. DEARE, Lieut.-Colonel I.M.S., with the assistance of BIRENDRA NATH GHOSH, F.R.F.P.S.Glas. Pp. xii + 698. Price 7s. 6d. Calcutta: Hilton and Co., 1915. London Agents: Simpkin, Marshall Hamilton, Kent and Co., Ltd.

The issue of the British Pharmacopœia, 1914, has been answerable for the publication of new editions of many of the leading works on *Materia Medica* and *Therapeutics*, and although only two years have passed since the appearance of the fifth edition of this treatise, the interval has furnished much additional pharmacological knowledge. In this edition the alphabetical arrangement hitherto adopted has been relinquished in favour of the classification of drugs according to their use and effect in medicine; but the need for some other method of ready reference has been met by the provision of an admirable index. Accompanying the particulars of the characters and composition of each drug is a list of its preparations, official and non-official, which is followed by a lucid explanation of its pharmacology and therapeutics, and by hints and cautions to be noticed when prescribing—a novel and particularly welcome addition.

THE PHARMACEUTICAL POCKET BOOK FOR PRACTITIONERS AND STUDENTS. By JOHN HUMPHREY, Ph.C., F.J.I. Fifth edition. Pp. 360. Price 1s. 6d. net. London: The Pharmaceutical Press, 1915.

This compendium is divided into four principal sections, comprising: Notes on the Formulæ and Processes given in the British Pharmacopœia, 1914; The Science and Art of Dispensing; The Analysis of Water, Milk, and Urine; and an extremely useful Dictionary of Synonyms and Trade Names. Scattered throughout the volume are various epitomes relating to the sale of poisons, poisons and their antidotes, tables of thermometric equivalents and of the metric and Imperial weights and measures, the *materia medica* of vegetable and animal origin, doses of official medicaments, and a list of the abbreviations generally used in writing prescriptions. The whole affords in small bulk an easy means of understanding the alterations in the new Pharmacopœia, and a valuable ready reference thereto.

A COMPENDIUM OF THE PHARMACOPŒIAS AND FORMULARIES (OFFICIAL AND UNOFFICIAL) WITH PRACTICAL AIDS TO PRESCRIBING AND DISPENSING. By C. J. S. THOMPSON, Fifth edition. Pp. vi + 398. Price 5s. net. London: John Bale, Sons and Danielsson, Ltd., 1915.

Commencing with a list of new remedies, this "Handy pocket-book of reference for medical practitioners, pharmacists, and students" proceeds to give synopses of the British and each of the Foreign Pharmacopœias, showing the existing differences in their respective formularies. A selection of unofficial and useful formulæ from the British Pharmacopœia Codex, Hospital Pharmacopœias, and other sources, is followed by analytical notes and special tests, the analyses of milk and urine, poisons and their antidotes and a table of synonyms. A list of the medical terms and phrases used in foreign pharmacopœias and prescriptions is an additional feature not met with in the majority of the publications on this subject. Besides the numerous practical aids to prescribing and dispensing, various lists and tables (for instance, an explanation of the terms used in oculists' prescriptions) are interspersed throughout this handy little compendium.

PROCEEDINGS
OF THE
ROYAL SOCIETY OF MEDICINE

VOLUME THE EIGHTH

COMPRISING THE REPORT OF THE PROCEEDINGS FOR THE
SESSION 1914-15

SECTION OF ANÆSTHETICS



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Section of Anæsthetics.

February 5, 1915.

Dr. HAROLD LOW, President of the Section, in the Chair.

Anæsthetic Ether.

By HORACE FINNEMORE, B.Sc.Lond., F.I.C.

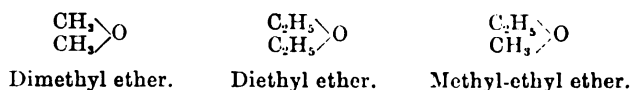
UNDER the term "ethers" are included those substances obtained from two molecules of an alcohol by the abstraction of one molecule of water. In their chemical relationship they are oxides of alcoholic radicles analogous to the oxides of the alkali metals, potassium, sodium, &c.—e.g., K_2O , Na_2O , R_2O , where $R = (CH_3)$, (C_2H_5) , (C_3H_7) , &c.

The chief method of preparation consists in acting upon the alcohols with a dehydrating agent, such as strong sulphuric acid. This is heated to a temperature of $140^{\circ}C$. and the alcohol gradually and continuously run into it, while the ether that is formed distils over into a receiver.

The first view of the reaction was that it was a case of simple dehydration, but there is no doubt that this hardly expresses the complete view of the case. The action of the sulphuric acid is to form ethyl hydrogen sulphate, which, acting upon another molecule of alcohol, forms ether and regenerates the sulphuric acid. The reaction is, therefore, continuous, and a small quantity of sulphuric acid should suffice theoretically to convert a large amount of alcohol into ether, but in practice its action is limited by the occurrence of reduction and various side reactions, which gradually tend to bring the main reaction to an end, and necessitate the provision of fresh acid.

When a single alcohol, containing only one alcoholic radicle, such as methyl or ethyl alcohol, is employed as the source of ether, the product necessarily contains only one kind of radicle and is called a simple ether ;

but if a mixture of two alcohols is used, not only are the corresponding two ethers formed, but there is formed a third ether, which, since it contains two radicles, is called a mixed ether. For example, while methyl and ethyl alcohol yield respectively only dimethyl and diethyl ether, a mixture of the two yields dimethyl ether, diethyl ether, and in addition the mixed ether, methyl-ethyl ether.



Dimethyl Ether.—The lowest member of the series, dimethyl ether or dimethyl oxide, is a gas boiling at -20°C . It is obtained from methyl alcohol by the general method outlined above. Some is formed whenever ether is made from mixtures of methyl and ethyl alcohols, and a little is therefore present in ether made from methylated spirit. It is largely used for the production of artificial cold.

Methyl-ethyl Ether.—The next member of the series contains another CH_2 and is the mixed ether, methyl-ethyl ether, mentioned above; this is formed from a mixture of methyl and ethyl alcohol. It is therefore formed, as we shall see later, when ether is made from methylated spirit, and it is found in unfractionated commercial methylated ether. Its boiling point is $+11^\circ \text{C}$.

Diethyl Ether.—The third member of the series is the most important as it constitutes the bulk of what we term anæsthetic ether. It is the only product where ethyl alcohol or rectified spirit is employed in the manufacture of ether. When pure it boils at 35°C . and has a specific gravity of 0.720.

It is said to have been discovered in 1542, by Valerius Cordus, but was possibly known before his time. It is not intended to enter into the historical question of who was the first to observe its anæsthetic properties. The theories of its formation from alcohol and sulphuric acid were formerly exceedingly vague. It was long considered to contain sulphur, which, if present, could only have been due to imperfect purification. Even to the present time, this view is reflected in the fact that it is often labelled and called "sulphuric ether" or "ether sulph."

As a class the ethers are volatile, inflammable, mobile liquids of low specific gravity. Although, chemically, they are fully saturated bodies, and are therefore stable and not very reactive, yet the presence of the oxygen atom, which under certain circumstances is capable of assuming

a quadrivalent character, renders them liable to form peroxides analogous to hydrogen peroxide. In fact, a well-defined addition product made from dimethyl ether is known.

MANUFACTURE OF ANÆSTHETIC ETHER.

Undoubtedly the best available source for the preparation of diethyl ether for all purposes is ethyl alcohol, which can be produced on a large scale in a tolerable state of purity, but the duty of over 20s. per gallon on this article prevents the economical production of ether from it. The only other source is that mixture of methyl and ethyl alcohols known as methylated spirit. The variety used is called industrial spirit. Its composition is 95 per cent. of alcohol and 5 per cent. of *wood naphtha* (methyl alcohol), and it differs from the ordinary methylated spirit sold to the public in containing no *mineral naphtha*. It can be distinguished from the latter variety by forming a clear mixture with water. As it contains the two alcohols mentioned above, it yields the three ethers—dimethyl, diethyl, and methyl-ethyl ether.

Owing to its cheaper cost, the ether made from the latter source has practically superseded ether made from rectified spirit. The requirements of a large general hospital, say of 600 beds, for anæsthetic ether amount approximately to one ton per annum, and since the latter variety costs approximately 25 per cent. of the former, we find that no large London general hospital uses ether made from rectified spirit, and figures have been published showing that a large proportion of anæsthetists in private practice also use the methylated variety. Moreover, the recent British Pharmacopœia, always well in the rear of actual practice, has now recognised industrial spirit as a source of ether.

Anæsthetic ethers comprise that made from rectified spirit and two main varieties obtained on a commercial scale from methylated spirit and sold for anæsthetic purposes. These are distinguished by their gravity and are:—

- (1) *Ether meth.*, specific gravity 0.717, prepared by washing.
- (2) *Ether meth.*, specific gravity 0.720, prepared by washing and fractionation.

(1) This variety represents the product obtained by the action of sulphuric acid on methylated spirit. Since it has only been washed and not fractionated, it contains all three possible ethers, and on that

MH—1a

account begins to boil at a very low temperature, the actual figures obtained in distilling 100 grm. being given in the following table. It will be seen that the sample possesses no definite boiling point. In distilling a sample, although iced water is running through the condenser, the vapour can be seen pouring out through the end of the condenser before any liquid distils over.

FRACTIONATION OF METHYLATED ETHER.

(1) *Low-boiling variety, specific gravity 0.717.*

First drop at 20° C.						Graumes
20.0°—25.0°	...	...	...	...	...	3.0
25.0°—29.5°	...	...	...	...	...	4.7
29.5°—31.0°	...	...	...	...	...	9.8
31.0°—32.0°	...	...	...	...	...	9.5
32.0°—32.7°	...	...	...	...	...	9.0
32.7°—33.4°	...	...	...	...	...	9.1
33.4°—33.9°	...	...	...	...	...	10.1
33.9°—34.0°	...	...	...	...	...	9.3
34.0°—34.2°	...	...	...	...	...	23.6
	Residue	...	...	...	...	8.0
	Loss	...	...	...	...	3.9
	Total	...	...	...	...	100.0

The temperatures recorded in these tables have not been corrected for the influence of changes in the barometric height. They are therefore not comparable among themselves, but serve to show the range within which the particular sample distils.

This ether is the cheapest anæsthetic ether obtainable. It has been and is still used in some of the large London hospitals, and it is preferred by some anæsthetists. Theoretically it is a more volatile product than the next variety, although if the two are allowed to evaporate side by side in similar dishes the rate of evaporation does not vary more than 3 per cent. per hour. Provided it has been well washed it is not necessarily an inferior product, and the presence of the lower homologues is not deleterious from a chemical point of view.

(2) The second variety of methylated ether has not only been washed but it has been subjected to a very careful fractionation, whereby the lower boiling fractions have been eliminated. Provided the fractionation has been efficient, nearly all the dimethyl and methyl-ethyl ethers have been got rid of, and the product corresponds very closely to the variety made from rectified spirit. The figures obtained by the fractionation of one of these and a sample of rectified ether are given in the following tables:—

(2) Higher boiling variety, specific gravity 0.720.

First drop at 33° C.					Grammes
33.0°—33.6°	...	...	...	...	2.8
33.6°—33.8°	...	...	...	...	7.8
33.8°	...	...	...	...	79.5
Residue	...	...	...	...	8.0
Loss	...	...	...	...	1.9
Total	...	...	...	...	100.0

ETHER FROM RECTIFIED SPIRIT.

First drop at 34.4° C.					Grammes
34.4°—34.7°	...	...	...	...	50.6
34.7°—34.8°	...	...	...	...	40.8
Residue	...	...	...	...	7.0
Loss	...	...	...	...	1.6
Total	...	...	...	...	100.0

PURE ETHER, FREE FROM ALCOHOL AND WATER.

First drop at 32° C.					Grammes
32.0°—34.0°	...	...	...	...	3.6
34.0°	...	...	...	...	86.2
Residue	...	...	...	...	8.0
Loss	...	...	...	...	2.2
Total	...	...	...	...	100.0

Freshly made ether from rectified spirit is, as we have seen, practically composed of diethyl oxide with a trace of alcohol and water. Although it may be quite pure when freshly made, yet on standing it is just as likely to oxidise as methylated ether.

It may be pointed out in passing that ether of specific gravity 0.735, containing as it does large amounts of alcohol and water, and, as a rule imperfectly purified, is not intended for, and should not be used for, anæsthetic purposes.

IMPURITIES AND THEIR SIGNIFICANCE.

The impurities that may be present in commercial ethers are either those appertaining to the source from which the ether is derived, or they are those resulting from decomposition of the ether on keeping. Considering the former class we find that rectified spirit contributes alcohol and water, whereas methylated spirit in addition to these yields a small proportion of acetone. The impurities formed on keeping include peroxides, aldehydes, and acids.

It is necessary to state that, generally speaking, anæsthetic ether is a very well purified substance, and that the standards set each other by

the different manufacturers are high. The amount of these impurities present is exceedingly minute, although it will be understood that where large quantities are administered over a prolonged period, the effect of a very small percentage of irritating aldehydes, for example, may be appreciable.

ALCOHOL.

Although, strictly speaking, this can be considered an impurity, yet it is a beneficial one, for in some work on this subject by the late Dr. Wade and the writer we found that the more perfectly we freed ether from the alcohol which is always present in the commercial article the more prone to oxidation the ether became. This is quite analogous to what was already recognized with regard to chloroform; in both cases the alcohol acts as a retarding agent to the oxidising changes that the pure substance spontaneously undergoes. Fortunately, it is extremely difficult on a commercial scale to eliminate the last traces of alcohol, and it is undesirable that this should be done. In fact, the recognition of say 2 per cent. of alcohol in ether, as is official in the case of chloroform, would be a decided advantage.

WATER.

Excess of water was formerly considered to be a disadvantage, and the last British Pharmacopœia defined a specific test for its presence by directing that no turbidity should be produced on admixture with carbon disulphide. I have had some ether containing water under observation for about ten months, and it seems distinctly to have acted as a preservative. The sample has been kept without any precautions as to light, &c., and the amount of peroxide present is quite negligible. This may either be due to the water as such, or it may have produced a little alcohol by hydrolysis, which, as we have just seen, acts as a preservative.

ACETONE.

Acetone is a normal constituent of methylated spirit, and unless specially taken out is found in ether derived therefrom. On the other hand, acetone has never been found in ether made from rectified spirit. The amount is extremely small, being of the order of about 1 in 5,000. Its chief interest is a commercial one and lies in the fact that its presence is indicative of the source of the ether, being very strong

presumptive evidence of its manufacture from methylated spirit, although its absence is no evidence to the contrary, as some firms know how to remove it, and systematically take out the acetone from their methylated ether.

The writer has examined samples of ether sold to hospitals, stated to be made from rectified spirit, which were carefully fractionated methylated ethers, the character of which was suspected from the fact that they contained acetone, and the derivation of which from methylated spirit was confirmed by other methods.

Acetone may be tested for by adding about 1 c.c. of a freshly made 5 per cent. solution of sodium nitroprusside, and then 3 or 4 c.c. of a strong solution of ammonia, followed by solid ammonium chloride. An intense magenta colour quickly develops.

About half the methylated ethers on the market are free from acetone, and, as a rule, these are cleaner in other respects. Apparently the processes used to take out the acetone have also assisted in getting rid of the other impurities.

PEROXIDES.

These seem to be the first products of the decomposition of ether, and probably consist of hydrogen and ethyl peroxides. They are formed by the action of air and sunlight, hence the necessity of keeping ether as much as possible in the dark.

The test which was official in the last Pharmacopœia was capable of detecting $\frac{1}{4}$ mgr. of hydrogen peroxide in 20 c.c. of ether. This test was not stringent enough, not because this amount is dangerous, but an ether containing even such a small amount of hydrogen peroxide would also contain aldehydes in sufficient quantity to render it very irritating.

The new British Pharmacopœia employs a much more searching test in stating that no yellow colour should be developed within three hours when ether is kept in a completely filled white glass-stoppered bottle in the dark and frequently shaken, and although a freshly distilled ether may comply with it, yet the same ether kept for a month will most probably be found deficient. This test is of high degree of stringency and is comparable with one employed for some time, which consists in mixing the ether with a solution of vanadic acid; the green solution is changed in the presence of peroxides to varying shades of brown and red.

ALDEHYDES.

The chief of these is acetaldehyde, which is a liquid of a suffocating odour. Aldehydes are invariably present in ether that has begun to decompose, and their presence and amount are important factors in arriving at a decision as to the fitness or otherwise of a sample for anæsthetic purposes.

The new Pharmacopœial test for aldehydes consists in keeping the ether in contact with freshly broken potassium hydroxide in a bottle for an hour. This is not unduly stringent, as the samples that we have been accustomed to choose for anæsthetic purposes will remain uncoloured for at least six hours—the time specified in the German Pharmacopœia—and sometimes more.

It should not be forgotten that in a hospital where the ether is probably never kept for more than a month, it is possible to insist on a higher standard than would be feasible for inclusion in the British Pharmacopœia, where the tests have to be applied to samples which have been kept for a longer period, and have been carried to all parts of the world.

ACIDS.

These are formed by the further oxidation of acetaldehyde and other aldehydes. Acetic acid is the chief of these. They may be readily tested for, by noting the reaction of the residue left after spontaneous evaporation in a glass dish, or by shaking the ether with water and testing the solution with litmus.

Any acid reaction should immediately condemn an ether for anæsthetic purposes, because its presence is a sign that decomposition has taken place. Very few samples indeed give an acid reaction. One I remember was a sample sent to me from a special hospital where operations were infrequent. This had been bought and was labelled as ether made from rectified spirit. The anæsthetist noticed the peculiar odour and that it seemed "weak." The presence of acetone and its behaviour on fractionation showed that it had been made from methylated spirit; moreover, the fact that it was exceedingly acid showed that it had seriously decomposed, and this was borne out by the presence of much peroxide and aldehyde.

THE TESTING OF ETHER.

For a large institution the testing of ether resolves itself into a comparison of the results obtained by applying the foregoing tests to a series of 1-lb. samples obtained from all the leading manufacturers, and it is quite easy to arrange them in order of merit. The absolute amount of any impurity is not so important as its relative amount. There are generally some which give negative tests for the presence of all the known impurities.

FRACTIONATION.

In order to be certain which variety of methylated ether is being supplied, and to distinguish between methylated and rectified ethers, it is necessary to submit the samples and bulk to fractionation. The evidence shows which of the three varieties is under consideration. A very efficient still-head must be employed.

SPECIFIC GRAVITY.

This alone gives very little information, because, taking an extreme case, an ether of specific gravity 0.717 can be increased to 0.720 by the addition of rectified spirit. It is necessary to point out the limits of this test because the specific gravity has been quoted as evidence of purity in a case of a patient dying under the influence of ether as an anæsthetic.

For anæsthetists who desire to obtain a rough idea of the ether they employ, the test with potassium iodide solution will be useful. Probably a more comprehensive test is one that I have employed for some years. It was first intended that it should be used as a test for vinyl alcohol, which is said to be present in commercial ethers. It was found to be unsuitable for this purpose, nevertheless it will quickly indicate freedom from decomposition products such as aldehyde and peroxides. It consists in adding to the ether a dilute solution of potassium permanganate containing 1 in 10,000, with 1 in 1,000 of sodium carbonate. Pure ether has no immediate action on this, very little change being observed in five minutes, but ether containing aldehyde or peroxides will quickly decolorise it, the rate of reduction being a very good index of the quality of the ether.

DISCUSSION.

Dr. DUDLEY BUXTON said that the members of the Section would welcome so useful a communication as the one Mr. Finnemore had presented. That gentleman's name was already well known to anæsthetists in connexion with valuable work done by him, in collaboration with the late Dr. Wade, on chloroform and ethyl chloride and published in the *Proceedings of the Chemical Society*. Mr. Finnemore had referred to the assumption of tetra-valency by the oxygen molecule in the lower ethers, and on this point the speaker desired to ask whether that fact could explain the evolution of heat occurring when ether and chloroform were shaken together, as during the preparation of the A.C.E. and kindred mixtures. It was commonly stated that mere mixing, in contrast to chemical union, did not cause the molecular phenomena which gave rise to the evolution of heat. Was there any evidence that in these mixtures the union was more intimate than mere solution? The speaker believed that the evaporation of the ingredients was not that represented by their proportional values in their solutions.

The PRESIDENT (Dr. Harold Low) said he quite agreed that the best thanks of the Section should be given to the reader of the paper, for the subject was one of great interest to them as anæsthetists. It was extremely important that the purest of drugs should be used in their work. He (the President) thought that impure ether containing the deleterious compound acetaldehyde was not infrequently sold for anæsthetic purposes. He would like to ask whether it was possible to detect its presence by the smell. One point to which he might perhaps draw attention was the liability of ether to form peroxides in the presence of air and sunlight. He would therefore warn anæsthetists not to keep their ether in large half-filled bottles of clear glass.

Mr. C. J. LOOSELY pointed out that when chloroform and ether were mixed an effervescence took place as well as an evolution of heat, and that also in spite of this and the increased temperature there was a contraction of volume which could be demonstrated by inverting a drop-bottle immediately after shaking the mixture; bubbles would then be found to enter.

Mr. FINNEMORE, in replying to the discussion, stated that evolution of heat and contraction in volume were observed when other substances—e.g., alcohol and water—were mixed, and, as far as he knew, no claim had yet been made that chemical action occurred. In the case of chloroform and ether no evidence was yet available which showed definitely that chemical combination took place, although the evaporation of a mixture of the two was not influenced by the presence of the other ingredient. In reply to the President's remarks, it was possible for a trained nose to detect the presence of aldehyde in ether.

A Discussion on the Methods of Induction of Anæsthesia.

Opened by HAROLD LOW, M.B.

LADIES AND GENTLEMEN,—As the paper we have just listened to was not likely to occupy the whole of our time this evening, I suggested at the last Council meeting of the Section that a discussion of the various methods in use for the induction of inhalation anæsthesia might be both useful and instructive. We, as specialists, I fear, suffer from the malady, I may call it, of isolation, which is so common among the members of our profession. Except at our own schools or hospitals we so seldom see one another at work. There is not that reciprocity of ideas which is so desirable in all scientific pursuit. Instead, therefore, of always listening to a paper on some new anæsthetic or new method, it is at times, I think, advisable to take stock, as it were. We are all liable to get too much into a groove. The best way I suggest to conduct this discussion is for each member present to state briefly the methods he or she employs and the reasons for doing so.

First, as to the induction of anæsthesia, I should like first to make a few general remarks. In the first place, it is immediately before and during the induction that the personality of the anæsthetist predominates. The knowledge as to how to deal with different temperaments at different ages is so important, as a patient about to undergo an operation is usually in an abnormal, nervous condition. To my mind, and I think you will agree with me, not only what method is used, but the manner of using it, makes all the difference, not only to the preliminary comfort of the patient, but also to the continuance of the anæsthesia as well as to the subsequent effects. In hospital work, perhaps, this side is too often neglected, especially in our teaching of the students. The soothing of the excited, the comforting of the nervous and frightened by a few gentle words, are so important.

Next, the various methods of inducing anæsthesia. From my own personal experience, which embraces more than twenty-five years, I have seen methods and ideas change. First, I remember when all patients except very old people and young children were smothered, I may say, by ether in a Clover's inhaler—the closed method without preliminary induction by nitrous oxide. A most unpleasant method. Next, the nitrous oxide and ether sequence was all the fashion—then various

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so-called dosimetric inhalers were invented for chloroform—none were ideal and most a failure. Ethyl chloride and preparations such as somnoform were tried with more or less success. In recent years the closed method has been substituted, with a number of anæsthetists, by the open method. This method was used as a general practice first, I think, in America. Its simplicity is what appeals to me. Combined with a preliminary inhalation of a weak mixture of C.E., I cannot help thinking it is the method which will become general, and that the Clover's inhaler has had its day. I know I shall find a number of members not in agreement with me. As we have decided at this meeting not to discuss the preliminary use of narcotic drugs hypodermically, it is a little difficult to make good my case, as the two methods go so together. There is one more point, and that is the use of oxygen. Personally, I find great help from this gas and use it as a matter of routine from the commencement to the end of the administration. I think it is a great mistake to keep it simply for emergencies.

Dr. DUDLEY BUXTON: While in sympathy with much that has been said by the President, I cannot see eye to eye with him with regard to the use of the nitrous oxide and ether method. As the subject of the use of narcotics introduced hypodermically before inhalation has been ruled out by the Chairman, I will only say that their employment calls for a difference in the methods of induction, a difference of entire method, or a difference in the detail of method. I, personally, give atropine whenever I give ether, so that alkaloid becomes a definite part of my method. The alleged drawbacks to a gas and ether method are mostly or entirely eliminated by using atropine and by attention to detail. The prolongation of the induction period, except under unusual conditions and states—e.g., traumatic shock—is no gain, indeed, I believe the rapidity of the action of nitrous oxide is one of its greatest merits. Cyanosis, after-sickness, headache, and so on, are due mainly to partial asphyxia, and are in no way necessary in the method. Oxygen, which I have used for many years and with all anæsthetics, completely obviates such complications and lessens the venous bleeding, a trouble which many surgeons appear to regard as a necessary effect of the use of gas and ether. Whatever anæsthetic and method are selected for the maintenance of anæsthesia, the gas and ether plan is applicable. The open ether method so much in vogue, besides requiring a tediously prolonged induction, does not, as a rule, provide a level of deep narcosis, such, for example, as is called for in

dissecting operations and those on the abdominal viscera. It never allows more than a 12 per cent. vapour, and usually a 6 per cent. is alone obtained, whereas by a closed inhaler an ether atmosphere of 30 per cent. or 40 per cent. is possible. Thus it seems to me to be a great gain if, by using the gas and ether sequence, you can gradually pile up your ether strength during induction, the period when the intake should exceed the output, since you thus obtain a depth of narcosis which is competent for any operation and can be easily maintained at its level, even when an open method is pursued consecutive to the gas and ether sequence. I believe that the reaction in favour of an open ether method owes its origin to the misapprehension of the high strength vapour given by the closed method and to the old vicious teaching that induction by ether necessitated and was assisted by maintaining so great an air limitation as to produce cyanosis. These are errors in technique and are, of course, absent in the open method. However, they are not inherent in the closed method and will be avoided by those who understand the closed inhaler method. The views on acapnia advanced so vigorously by Professor Yandell Henderson, which indicate that a light narcosis—ineffectual rapid respiration—leads to a lowering of the content in blood of carbon dioxide, seem to me to indicate an additional merit in the gas and ether method for induction. While an open ether method tends to produce the condition said to lead to acapnia and fibrillation of the myocardium, the closed method certainly conserves the carbon dioxide in the blood and tissues and so protects the heart.

Time does not permit of details of methods being entered upon although it must be pointed out that such details require needful attention during the induction of anæsthesia when dealing with the many types of persons who require anæsthetics. Those who dread "gas" can, as a rule, be guided into the second degree of narcosis by inhaling chloroform from a regulating inhaler, such as the Vernon Harcourt. This could be followed by using a closed ether method, and then maintenance effected by the open ether system. With regard to this, I think it is very important that any mask used should be so made that a considerable space intervenes between its convexity and the face in order that one may breathe from an *atmosphere* of ether and air, rather than inhale the chilled ether vapour drawn by the inspiration directly from gauze forming the concavity of the mask. Also, excessive evaporation of ether away from the patient into the room should be prevented by covering the gauze with a layer of lint in which a hole is cut to receive the drops

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of ether. I concur with the President that the anæsthetist should and could help the nervous patient by kindly treatment and by inspiring confidence. I habitually urge this on students whom I am teaching, and I remind them that whereas the administration of an anæsthetic is an episode to them, it is an epoch in the life of the patient, and inspires at once dread and loathing. The pre-anæsthetic storms of fear and struggling are apt to reproduce themselves during induction, and even in deeper narcosis, in the form of anarchical perturbations of respirations and changes in blood-pressure, and hence should, if possible, be carefully avoided or minimised.

Mr. BOYLE: I prefer to induce anæsthesia with the gas-ether sequence, and use for that purpose a Clover's inhaler, with a small bag with gas tube attachment. I prefer this method because it shortens the period of induction, and I think that anything that can be done to shorten the induction period is a boon to the patient. Those who have had anæsthetics themselves will probably agree with me that during the induction period there is almost always a stage of mental excitement, which is little short of torture, and therefore I always try to make that period as short as possible. With regard to the suggestion that has been made that there is frequently a considerable amount of cyanosis attending induction by this method, I cannot agree, indeed, I hold and have taught for some time that cyanosis is nearly always due to faulty administration and faulty technique. No doubt there are many who will not like to admit this, but, nevertheless, I believe it to be true.

Section of Anæsthetics.

March 5, 1915.

Dr. HAROLD LOW, President of the Section, in the Chair.

Discussion on the Influence of Preliminary Narcotics on (a) Induction, (b) Maintenance, (c) After-results of Anæsthesia.

Opened by J. BLUMFELD, M.D.

ABOUT four years ago this Section held a discussion on very similar lines to those laid down for this evening. On that occasion the opinions expressed were at the same time very various and very emphatic. There were those who, enthusiastic for the novel procedure, would lead one to imagine that with the use of morphia and scopolamine, followed by open ether, the ideal in anæsthesia had been achieved. They claimed the perfectly quiet induction, absolute relaxation and complete freedom from after-effects which we are accustomed to see claimed for every innovation in anæsthetic practice. There were others, equally strenuous on the other side, who maintained that increased excitement and prolonged rigidity were the main phenomena they had witnessed in connexion with the use of preliminary narcotics. These opinions were in neither case the result of prolonged experience, and I think that to-night's discussion will probably show a juster view and will prove that, as is so often the case, the first impressions were of too wholesale a character, and that the truth is ascertained when we have been able, by long use, to exercise discrimination, and to declare that there are cases where this method is of the greatest value, and others where it should not be employed. This brings me to the first point which I wish to raise—viz., the routine

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use of preliminary narcotics. My own view with regard to this is that we should not employ any of these drugs as a routine except atropine. So far I have neither met with, nor heard of, any ill-effects from the preliminary use of atropine, and therefore I think we are justified in using this in a routine manner. We must remember that a routine use of preliminary drugs before anæsthesia involves us in the proceeding of prescribing the drug for a patient whom we have not seen. This does not seem to me a reasonable course of action in the case of such drugs as scopolamine and morphia, and I believe, therefore, we should use these only if we have the opportunity of either seeing the patient beforehand, or at least of satisfying ourselves that there is every probability of the drugs not upsetting him. Also, it must be certain that he will not have to walk or to be disturbed after the hypodermic injection and before the operation.

It is in hospital practice particularly that there appears to me to be objection to the routine use of these drugs, because it often happens that the experienced anæsthetist, who was expected, does not actually give the anæsthetic, and the administration falls to the lot of a junior man who has had no experience with the conditions brought about by preliminary injection, and who would not have had one given had he known he was to be the anæsthetist. These remarks do not apply to atropine, and the routine use of this drug has the great advantage that it renders convenient the free use of open ether, when without it there would be in many cases much trouble from secretion of mucus and saliva. Another point against the routine use of morphia and scopolamine is this, that the case may turn out to be one in which chloroform should be given to a deep degree of narcosis, and that is not a method of anæsthesia to be safely practised after the preliminary use of these narcotics. A recent American writer states that he considers preliminary medication an essential whatever anæsthetic is used for patients between the ages of 19 and 50. This is, to my mind, a sweeping statement, only to be accepted with the reservations that I have indicated. Let us look for a moment at the advantages which we may expect to derive from preliminary narcotics. They are, I think, these: First, a quiet induction, begun with the patient in a state of drowsy indifference, if not already asleep; secondly, a diminished consumption of the anæsthetic during anæsthesia and a diminished chance of surgical shock; and thirdly, diminution or absence of all deleterious after-effects. Now atropine, for which alone I recommend routine use, plays a large part in securing the second and third of these advantages,

though it helps but very occasionally, if ever, towards the first. Scopolamine alone, or scopolamine and morphia, are much more potent in quieting a patient beforehand, and in the case of frightened or highly nervous individuals they give great help. Yet there are cases in which these drugs do the very opposite of what is hoped for from them, and cause a condition of excitement or of nausea; that is another reason why I do not like to use them unless I can see the patient beforehand, and have at least a chance of judging whether the narcotics will be helpful or the opposite. Again, these drugs, in my opinion, prolong the induction of anæsthesia, and particularly prolong the time necessary to obtain complete muscular relaxation. It may be that this is owing to their effect in lowering the respiratory extent and activity, and indeed the delay has sometimes seemed to be abolished by the concurrent use of oxygen. With regard to after-effects, the balance of evidence is in favour of good results from scopolamine, with or without morphia. The unconsciousness is, of course, much prolonged, and during this time the anæsthetic is being eliminated. When consciousness revives there is sometimes as much sickness, though starting later, as if no narcotic had been employed; more often, however, the sickness does not occur, or is but slight.

The kind of cases for which I prefer to use morphia and scopolamine, or omnopon alone in addition to atropine, are these: First, highly nervous individuals who are afraid of taking an anæsthetic, and also insane persons; secondly, all protracted nose and throat cases; thirdly, in the case of all very muscular, plethoric, or alcoholic individuals, even though the operation is to be a short one. I value these drugs in the nose and throat cases because of the ability they afford us to keep the patient conveniently quiet during a light degree of narcosis, with unabolished coughing reflexes. In the difficult muscular and alcoholic subject they enable us to maintain an open ether anæsthesia, impossible without their aid.

Sir FREDERIC HEWITT: I have a high opinion of the use of preliminary narcotics, provided care and discretion be exercised. It is to be regretted that the anæsthetist is not, as a rule, able to see his patient some time before the operation. Whenever practicable, however, such a course should always be adopted. By careful inquiry as to the patient's susceptibility to narcotics and by the use, in certain special cases, of a trial administration a day or two before the operation, the anæsthetist is generally able to secure good results. I have taken

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careful notes of 266 cases—principally abdominal—in which I have employed preliminary narcotics, sometimes using morphine and atropine, $\frac{1}{8}$ gr. to $\frac{1}{4}$ gr. of morphine and $\frac{1}{150}$ gr. to $\frac{1}{120}$ gr. of atropine, and sometimes morphine, scopolamine and atropine in the respective doses of $\frac{1}{8}$ gr., $\frac{1}{100}$ gr. and $\frac{1}{120}$ gr. I have endeavoured, whenever possible, to compare the effects of different procedures upon the same patient. There is no doubt in my mind as to the general advantages of the plan, not only in regard to the patient's comfort before and after the anæsthetic, but in regard to the absence of excitement and muscular rigidity. Atropine is very valuable in that it prevents nasal and oral secretions, and thus very materially lessens after-vomiting. I have obtained the most complete abdominal relaxation with morphine and atropine, followed by open ether freely administered orally, not nasally.

I have of late become rather shy of scopolamine except in cases in which definite pre-anæsthetic stupor seems indicated. I have met with one case of distinct scopolamine idiosyncrasy. The patient, an elderly man who had lived well, was profoundly narcotised by $\frac{1}{100}$ gr. scopolamine; the anæsthetic was given while he was in this condition; there was most inconvenient rigidity during the operation of prostatectomy, and during recovery there was so much excitement that assistance had to be obtained. I have also published one very remarkable case of morphine idiosyncrasy. I have never seen any contra-indications to the use of atropine.

On the whole, I am inclined to use morphine ($\frac{1}{4}$ gr. for adult males, $\frac{1}{8}$ gr. for women, with $\frac{1}{150}$ gr. of atropine) before practically every operation, provided there are no contra-indications. I prefer freshly prepared solutions to "tabloids," and it is important that the needle should enter the subcutaneous tissue. I generally have the injection given three-quarters of an hour beforehand. There are, however, in my judgment, certain cases in which morphia is strongly contra-indicated. It should not be given to patients suffering from any respiratory difficulties. It is, moreover, in my opinion, strongly contra-indicated in all throat, nose, and mouth operations liable to be attended by hæmorrhage, unless indeed a light, and therefore an inconvenient, anæsthesia be maintained. I have known two or three fatalities—one after excision of the tongue and one after excision of a laryngeal growth—which were, in my opinion, partly, if not chiefly, due to pneumonia excited by the passage of blood into bronchi rendered insensitive by morphine. The profession has not, I think, fully realised the import-

ance of a rapid return of the coughing and swallowing reflexes after operations of this character. There is also another class of case in which morphine is probably very prejudicial; but here I feel I am invading the province of the surgeon, for I refer to the risks of giving morphine *after* abdominal operations. When these operations have been conducted under mixed narcosis I think that special care is needed lest an additional dose of morphine paralyse intestinal action. There seem to be certain cases of enterectomy in which the bowel very tardily regains peristalsis, and it therefore seems clear that great caution is needed before repeating morphine used as a preliminary to anæsthesia. As to the behaviour of morphinised patients under anæsthetics, I agree that the sleep-like breathing may sometimes prolong the administration. I should like, however, to state very definitely that I do not remember any case in which marked slowing of breathing has taken place during full anæsthesia. Certainly such cases are very rare with morphine, though they may be more common with scopolamine. For highly nervous, apprehensive, excitable subjects I consider the use of appropriate preliminary narcotics almost essential to success.

Dr. TATE: I am strongly in favour of the preliminary use of narcotics prior to anæsthesia. I am in the habit of using morphia, atropine and hyoscine, or morphine and atropine alone. It is necessary to exercise some care and judgment in the use of hyoscine, which is not advisable in the case of old and feeble patients. The use of these preliminary drugs may be considered from the point of view of the surgeon and of the patient. It has been stated as an objection to their use that complete relaxation of the abdominal muscles is not always obtained. So far as my experience goes, which embraces operations chiefly over the lower area of the abdomen, I have not found any difficulty in obtaining satisfactory relaxation of the abdominal walls. There are many advantages from the patient's standpoint. In many cases the patient's senses are partly dulled, and in some cases they are entirely freed from all the painful dread and nervous tension of the hour preceding the operation. The amount of anæsthetic required during the operation, after a preliminary narcosis, is materially diminished, and sickness after operation is reduced to such an extent that it is quite an exception for any troublesome sickness to occur at all. As a rule, the patients pass into a comfortable quiet sleep after being put back to bed and remain in this state for some hours. In some cases, when they become entirely

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conscious they have no recollection of any incidents in connexion with the operation, which is an enormous advantage in the case of nervous patients.

Miss TURNBULL: There are two points on which I should like to express my agreement with Dr. Blumfeld: (1) I have found the preliminary use of atropine alone very satisfactory; (2) I agree that the preliminary injection of atropine and morphine before operations on the nasal passages is of great value.

Dr. MENNELL: I have practically nothing to add to what Dr. Blumfeld has said, and I am in complete agreement with his conclusions. Dr. Tate is to be congratulated on the results he has obtained, but he is fortunate in having only cases involving the lower abdomen, and further, his theatre is immediately outside the ward, so that it is especially easy to control patients after injection of the narcotic and before the anæsthetic is given. It must, I think, be generally allowed that scopolamine sometimes causes difficulty in high abdominal cases when complete relaxation is a necessity, and the majority of anæsthetists must have met surgeons who refer to a rigid abdomen under an anæsthetic as the "scopolamine belly."

Mr. BOYLE: There is very little to add to what has been so ably expressed by Dr. Blumfeld, Sir Frederic Hewitt, and the other speakers, and there is one point that I think this discussion has emphasised, and made clear, and that is that we as anæsthetists ought to see our patients a day or so before the operation. It is obviously wrong to prescribe a routine dose of any narcotic or mixture of narcotics without first seeing the patient, so that we can determine whether a narcotic is desirable or not, and if it is desirable, to decide what drug or drugs, and what dose is most suited to the case in hand. Moreover, if we have seen the patient before the operation—and I speak now especially of nervous patients—we can to some extent calm their fears; and even if we do nothing else we have seen each other, and on the morning of the operation the anæsthetist is not another strange person to be encountered. It is an important point, and one that I wish the surgeons would consider.

I have recently at No. 1 Base Hospital, to which I am attached, been giving a fairly strong dose of a narcotic mixture to the soldiers one hour before the operation; I think that by giving it one hour before

one probably obtains the maximum effect. The dose I have been giving is morphia $\frac{1}{4}$ gr., atropine $\frac{1}{100}$ gr., scopolamine $\frac{1}{100}$ gr., and I have made careful inquiries from the sisters as to results. There is no doubt in my mind as to the benefit obtained with regard to the quietness of the induction period. Before this injection was given the men, although fairly quiet at the start of induction, almost invariably struggled and fought; and my experience goes to show that beneath this outward calm they one and all are nervous, and fight when losing consciousness. But now all this is changed; they come up in a drowsy condition, they are anæsthetised quietly, they return to the ward, and recover quickly and quietly. There is, however, one great drawback which has been complained of, and that is the intense thirst and dryness of the mouth both before and after the operation, but with this exception the condition of the men, before and after, has been most satisfactory.

Dr. G. A. H. BARTON: I think the Council are to be congratulated on their choice of a subject for discussion to-night, which is one of considerable general interest. I only wish to dwell on a few points that have impressed themselves upon me as a result of my practice in the last three years, during which I have practically adopted the administration of narcotics previous to anæsthetisation as a routine method. I have used morphia, scopolamine, and atropine alone, or in various combinations, Riedel's scopomorphine, omnopon, and omnopon-scopolamine.

Owing to the depressing influence of narcotics on the respiratory centre, induction is slower than usual where the agents used are chloroform or ether, alone, or in combination; but where, as almost invariably rules in my practice, ethyl chloride is used in addition, its stimulating effect on respiration becomes obvious and the patient quickly goes under. Struggling, of course, is, as a rule, much less marked and very transitory.

With regard to the type of anæsthesia developed, I think the best results are to be obtained by a full dose of morphia and scopolamine, say $\frac{1}{4}$ gr. and $\frac{1}{100}$ gr. as a routine, with an extra amount of morphia for big and strong men: soldiers, I may say, seem especially to need big dosage. Thereafter my object has been to keep the patient in a condition of light anæsthetic sleep by means of the minimal dosage of open ether necessary for the purpose. It is astonishing how little is required in many cases. I always like to keep a brisk corneal reflex; some movements are not infrequently present. Once they are accustomed to

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it, surgeons invariably appreciate this form of narcosis, and they soon realise its advantages. Shock practically never occurs. Whilst I am by no means a convert to Professor Crile's theory of shock, nor to the *details* of his method of anoci-association, I am a believer in the *principle* of the method, and am convinced that in the judicious combination of alkaloids and open ether we arrive at the best means of carrying out these principles.

The use of narcotics enables us in nearly all cases to maintain the anæsthesia with open ether. I have never deliberately set myself to follow them up with chloroform and consider that a practice to be deprecated. For a long time we have appreciated the dangers of over-dosage, and lately, thanks to Dr. Goodman Levy,¹ we have learnt something of the dangers of under-dosage of chloroform. Again, chloroform lowers blood-pressure and conduces to shock and post-operative complications.

Another advantage of the use of alkaloids and open ether is to be seen in the after-condition of the patient. If he has had previous experience of other methods he will, at any rate, appreciate this one. He generally sleeps comfortably for some time after the operation, and as a rule wakes up feeling none the worse for the experience, being rarely troubled with vomiting or other post-anæsthetic discomforts. Of course, one occasionally comes across patients who are upset by morphia. Speaking generally, I have found morphia vomiting more common in adolescents. Again, one occasionally meets with a type in which scopolamine appears to set up a great deal of excitement. There is no doubt that patients recovering from this narcosis require a little more careful watching than others.

Dr. SHIPWAY: I am entirely in favour of the principle of giving narcotics before operation whenever possible. This is a real kindness to the patient and of much assistance to the anæsthetist. Morphine and atropine can be given in the majority of cases, but for very nervous patients scopolamine should be added, although it has the disadvantage that it sometimes makes induction slow and delays the attainment of relaxation in operations upon the upper abdomen. I am in favour of using small doses of morphine combined with atropine in mouth, nose and throat operations. As regards after-results, the preliminary injection of narcotics undoubtedly ensures a better recovery. I do not think, from careful inquiries, that flatulence is increased. There

¹ *Proceedings*, 1914, vii, pp. 57-84.

are, of course, some cases of idiosyncrasy to morphine ; if this condition in the patient is known beforehand chlorotone may be substituted, often with advantage. I have found it useful in some patients who have on previous occasions been much troubled with vomiting.

The PRESIDENT in closing the discussion, said: The present discussion has been, I think, useful and complementary to that of the last meeting of the Section, "On the Methods of Induction of Anæsthesia." When the subject of the use of narcotic drugs as a preliminary to anæsthesia was brought before the Section several years ago but few of the members had had any extensive experience of their effect. Now most of us are able to give an expert opinion as to the advisability of using them. I quite agree with the opener of the discussion that as regards such drugs as morphia, scopolamine, omnopon, &c., their routine use in hospital practice is not advisable. In unskilled hands they are not free from risk. It is often impossible, in hospital practice, to say who may have to administer the anæsthetic in any individual case; and house officers vary so in their knowledge of the subject, that whereas these drugs are safe in one man's hands, they are not in another's. At St. Thomas's Hospital, a rule has been made that no narcotic drugs are to be used by the resident staff. The danger that may arise from their use especially applies to chloroform. And I go so far as to say that deep chloroform anæsthesia should never be induced subsequent to their administration. As to the use of atropine by itself, I do not think the foregoing remarks apply; as I have never seen any ill-effects from its use, and its property of arresting the mucous secretions may produce a beneficial effect. In private practice I make a point of either seeing the patient beforehand or communicating with the surgeon or doctor in charge of the case before ordering the administration of morphia and such-like narcotics. On the other hand, when a skilled anæsthetist is going to administer the anæsthetic, and in selected cases, I am firmly convinced a preliminary injection of a small dose of morphia and atropine is highly desirable. As to the use of scopolamine I am not so certain. Its action is often not to be depended upon, and I have seen several cases in which definite toxic symptoms have supervened.

On the agenda the discussion has been divided into three parts, the induction, maintenance, and after-effects. Personally, at all these times I think good may arise from the use of morphia and atropine. First, in the pre-induction stage, the patient, who is often in a highly nervous

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condition, is soothed either to sleep or to a state of quietude. Among the military patients, of whom I have lately had so much experience, this has been most marked, and many a poor soldier has been completely oblivious of the fact that an anæsthetic has been administered to him. How great a gain is this. Next as to the maintenance: I am sure that less anæsthetic is required throughout the operation. I cannot help thinking that those speakers who have laid stress on the rigidity following the use of scopolamine have forgotten the fact that the anæsthesia is lighter than in cases where no narcotic has been previously used. Thirdly, as to after-effects, I quite agree with Dr. Tate in his remarks that post-anæsthetic sickness is rare after the use of these drugs.

In conclusion, I may say that should it be my fate to have to undergo an operation I trust I may be given an injection of morphia and atropine beforehand.

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November 26, 1914.

Dr. SEPTIMUS SUNDERLAND, President of the Section, in the Chair.

PRESIDENTIAL ADDRESS.

Old London's Spas, Baths, and Wells.

GENTLEMEN, — My temerity in having ventured to accept the honour you have conferred upon me by electing me your President has brought in its train certain penalties, one being the preparation of an address; a penalty you have yourselves incurred is that of acting as audience. I am desirous of asserting my grateful recognition and appreciation of the kindly sentiments that influenced you in your selection.

In January of this year Dr. Clippingdale read an excellent paper before the Section entitled "London as a Health Resort," and mentioned the fact that, in bygone years, London possessed many medicinal springs and wells. In the ensuing discussion I pointed out that *some* of these springs and wells, where people gathered together to imbibe the waters and to indulge in amusements of various kinds, were dignified by the title of "Spas," and that traces still remain in the Metropolis and its environs.

One of our Secretaries, Dr. Buckley, suggested to me that the subject of my remarks on that occasion, if elaborated and amplified, would prove of interest sufficient to warrant its expansion into an "address," and his opinion was confirmed by his colleague, Dr. Campbell McClure. I have therefore prepared an account of the old Spas, Baths, and Wells of London; and although the subject-matter is not of great utility as far as the practice of medicine is concerned, I venture to consider it may be found of interest from various

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points of view, to those of our Fellows engaged in spa practice, to those who practise in London, and perchance even to some who belong to neither of these classes.

Antiquaries consider the fact to be well established that London was founded by the Britons, and, amongst the various etymologies of the word "London" suggested, it is interesting to note in connexion with the subject of this paper that W. Owen, F.S.A., editor of the "*Welch Archæology*," considered it to be derived from *Llyn*, a lake, or broad expanse of water, and *din*, a town, and supported this view by recording the probability that the low-lying lands on the Surrey side of the river towards the Camberwell hills would be frequently overflowed before they were protected by embankments. If we accept this derivation the word London would mean the "Town of the Lake."

On considering the situation of London, the geological formation of the land on which it lies, and the fact that many tributaries of the Thames, taking their origin on the hills both north and south of the Thames Valley, used to descend to join the great river before the lands were built over, one easily understands why the lands around the town were in former years so fertile in springs and wells.

The following oft-quoted passage, translated from the original Latin of "*The History of London*," written in 1180 by William Fitzstephen, the Anglo-Norman chronicler—a monk of Canterbury and the friend of Becket—brings vividly to one's imagination the existence of such springs more than seven hundred years ago, within a very short distance (about a mile and a half) of the spot where we are now assembled :—

"Round the City again, and towards the North arise certain excellent springs at a small distance, whose waters are sweet, salubrious, and clear, and whose runnels murmur o'er the shining stones : among these, Holywell, Clerkenwell, and St. Clement's Well may be esteemed the principal, as being much the most frequented, both by the scholars from the school (Westminster) and the youth from the city, when in a summer's evening they are disposed to take an airing."

John Stow, the English antiquary and historical writer, who flourished in the latter half of the sixteenth century (Elizabeth to James I), writes :—

"They had in every street and lane of the city divers fair wells and springs ; and after this manner was this city then served with sweet and fresh waters, which being since decayed, other means have been started to supply the want."

Springs abounded not only on the north side ; on the south side of the river, in Southwark, Lambeth, and contiguous neighbourhoods, many springs and wells also existed.

As time went on, and as buildings were gradually erected over the outskirts of the old city, the construction of cesspools and drains interfered with the purity of the springs and wells, most of which were gradually obliterated. Other methods of water supply were imperatively necessitated, and even as early as 1236 the construction of a conduit was commenced from springs in the Manor of Tyburn, on the site of the present Stratford Place, off Oxford Street, for conveying water in pipes of 6-in. bore to the City ; after this date many conduits to the City were laid. The building where the water of each conduit was received in stone cisterns lined with lead for distribution was also called a conduit or "bosse."

Later the needs of the population demanded more remote sources of water supply, and it is interesting to remember that in 1609 the first spade work in the construction of the famous New River, originated by a Welshman, Hugh Myddelton, a wealthy London goldsmith and Member of Parliament, whose statue may be seen on Islington Green, was commenced in the vicinity of the chief springs at Chadwell and Amwell, near Ware in Hertfordshire, twenty miles from London. The Chadwell spring was named after St. Chad, referred to later in this paper.

The Great Fire of London, in 1666, destroyed many of the old wells and springs, which were subsequently built over. Later the rapid increase of building and the construction of sewers led to the disappearance of most of them.

I will now endeavour to set before you a brief account of the old wells and springs, many of which were considered to heal and cure (1) either by inherent virtues, believed in the very early days to be miraculous or holy ; (2) or by distinctly medicinal properties due to the content of mineral substances. Some of the latter were, in part of the seventeenth, in the eighteenth, and part of the nineteenth centuries, resorted to by people in search of health and diversion, and were spoken of as "spas." I have added a few notes on olden baths of London, which may not be considered out of place.

I have found it a puzzling matter to classify the different wells and spas of which there is record ; the arrangement adopted has resolved itself into grouping together, with consideration of location as far as possible : (I) the holy wells ; (II) other wells and springs of less

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importance ; (III) the olden baths ; (IV) those springs and wells which appear to deserve the title of spas, and had some of the characteristics of the British spas of to-day.

I take pleasure in recording my indebtedness to the fascinating book of Mr. Alfred Stanley Foord, entitled "*Springs, Streams and Spas of London*," from the pages of which I have gleaned many particulars concerning some of the wells and spas mentioned.

(I) HOLY WELLS OF OLD LONDON.

The ancients dedicated springs to deities—the earliest holy well recorded in history being that at Annu (Heliopolis), in Egypt, about five miles to the north-east of Cairo, where, according to the legend, Ra, the sun-god of ancient Egypt, used to bathe each day at sunrise, and where Piankhi, a King of Nubia, who invaded and conquered Egypt, washed his face about 750 B.C. In this country the Druids worshipped brooks and fountains, and the Saxons also brought similar customs to Britain. Later, Christianity did not entirely destroy the association of religious ideas with springs and wells, but continued it, by giving to wells and springs the names of saints. Such springs were deemed to be holy or sacred, and had marvellous healing virtues attributed to them ; the waters were drunk and bathed in by the credulous amongst the people, encouraged by the Roman Catholic priests and their subordinates, the "clerks." Many so-called Holy Wells existed in England, and London and its environs added their quota to the list, the majority being in the vicinity of a church or abbey, or religious house. Only a few of them had any definite medicinal action, so far as one can determine, but some probably contained iron, and others magnesium sulphate and sodium sulphate.

(1) First and foremost amongst the holy wells of London I place *St. Chad's Well* (described under "*Spas*"), partly because it was supposed to be one of the most ancient of the holy wells, and partly on account of its association with the name of St. Ceadda or St. Chad, who died in 672, and became spoken of as the patron saint of medicinal springs and wells. I may be permitted therefore to refer to certain facts concerning him which may not be generally known. In the year 669 St. Ceadda or St. Chad, a native of Northumbria (frequently confused with his brother St. Cedd, Bishop of London), succeeded Jaruman as fifth Bishop of Mercia, which consisted of seventeen counties stretching from the banks of the Severn to the North Sea.

He established his see at Stowe, on the spot where St. Chad's Church now stands, about half a mile from the present Lichfield Cathedral. There, surrounded by a small college of seven presbyters, he dwelt in a cell, and lived a life of prayer, study, and active ministerial work. In a garden behind some thatched cottages, about fifty yards from the church, a small stone structure covering St. Chad's Well, a spring of pure water in which, according to the legend, St. Chad used to stand naked and pray, can be seen to this day; it is believed that the stone block on which he used to stand is now built into the wall. The old woman who shows the well states that the water has still a reputation for "rheumatism and bad eyes," and is known amongst the townspeople as the "Wishing Well." The inscription on the stonework covering the well is "C. E. E. P. DCLXIX." St. Chad died in the year 672, and was buried at St. Mary's Church; later his bones were removed to the Church of St. Peter, built about A.D. 700, which remained the Cathedral Church of Lichfield and the shrine of St. Chad for nearly five centuries. Devotees used to visit this shrine and mix a little of the dust with water, which was then believed to be capable of achieving miraculous cures when drunk. In the twelfth century a new Norman cathedral dedicated to St. Mary and St. Chad was erected in its place. No portion of the Norman building is now in existence above ground. In the present cathedral there is a chapel dedicated to St. Chad, which was built about 1230 by Bishop Langton. The relics of St. Chad were deposited in a shrine in the Lady Chapel, built especially for them by Bishop Langton, and remained there until after the Reformation, when portions of the relics were removed to different places. It is interesting to note that some of his bones were deposited in the chapel of the College of Liège, Flanders, in 1669, by Richard Strange, Rector of Ghent, who was possibly influenced by the facts that St. Chad was the patron saint of springs and wells, and that Spa, the ancient and famous watering-place, was situated about sixteen miles south-east of Liège. Other portions, consisting of a left femur, the two tibiæ, one with the head of the fibula attached, and a fragment of a humerus, reached Oscott College, Staffordshire, in 1837, after many changes of location; and in 1841, at the opening of the new Cathedral of St. Chad in Birmingham, they were transferred to that church, where they still remain enclosed in a rich reliquary over the high altar. Immediately over the central door of the west front of Lichfield Cathedral is a stone figure of St. Chad, in whose honour thirty-one churches were dedicated. Above the north

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door of the cathedral on the right is a figure of St. Mary and Child, and on the left a figure of St. Chad. I have described St. Chad's Well, London, under "Spas," because it achieved its greatest reputation as a "spa."

(2) *Clerkenwell* was rich in springs. The parish took its name from the *Clerks' Well*, near Clerkenwell Church and the nunnery of St. Mary, first mentioned by Fitzstephen in 1180. The well itself owed its appellation to the fact that the "parish clerks" of London (the acolytes of the Roman Catholic priests) used to assemble there yearly to give dramatic representations from the Holy Scriptures—the so-called "Mysteries" or "Miracle Plays." In 1673 it was gifted by the Earl of Northampton for the use of the poor of St. James's parish. In 1800 its site was marked by a pump at the south-east corner of Ray Street, Farringdon Road, E.C., with a tablet bearing an inscription; but newer houses now occupy the spot and no pump or well is to be seen. In 1897 it existed, covered by a brick arch, under the floor of No. 18, Farringdon Road.

(3) *The Skinner's Well* existed near Clerk's Well in Stow's time, and may be considered to have been a holy well because "Mystery Plays" were performed yearly around it by the Skinners of London.

(4) *Sadler's Well* (described under "Spas") has some claim to have been a holy well in early days.

(5) *St. Clement's Well*, Strand, was situated 200 ft. north of St. Clement Dane's Church, and was mentioned as early as 1180 by Fitzstephen; later it acquired the name of the "Holy Well," from which the old Holywell Street, Strand, demolished in 1901, took its name. It is possible that St. Clement's and the "Holy Well" were two distinct wells. The water was probably not medicinal, but was clear and pure, and the well, in later years covered by a pump, was a favourite resort for Londoners during many centuries. The Ascension of our Saviour was commemorated here on Holy Thursdays, when newly baptized converts appeared, clad in white robes. Here, also, was a halting place of the pilgrims on the way to Canterbury, who used to encamp near the well to refresh themselves and their horses. The exact spot of the well is not known, although there is reason to believe that it is covered by the Law Courts, built between 1874 and 1882.

(6) *St. Bride's* or *St. Bridget's Well* was situated near the old palace of Bridewell, a residence of the English kings from the time of

Henry III to Henry VIII. The palace was burnt down in the Great Fire of London. The spring had a sweet flavour, and was exhausted at the coronation of King George IV, in 1821, by crowds of thirsty loyal subjects. A pump in a niche in the eastern wall of the churchyard adjoining Bride Lane is said to mark the spot where the well existed.

(7) *Monk Well*, commemorated by the present Monkwell Street, E.C., was so named from the fact that a monk lived in a hermitage in the vicinity, whose duty was to pray for the soul of Aymer, Earl of Pembroke, in lieu of rent for land held there in 1347 by a Leicestershire Abbey.

(8) Well Street, E.C., quite near Monkwell Street, takes its name from a *St. Giles's Well*, which existed in early days near Monk Well.

(9) The Church of St. Olave in the Old Jewry, now demolished, was originally called *St. Olave Upwell*, from a well with a pump attached.

(10) *St. Mary Woolnoth Church*, rebuilt in 1719 at the junction of Lombard Street with King William Street, E.C., had a spring in its precincts.

(11) There was another *St. Chad's Well* at Shadwell or Chadwelle, near Wapping, from which that locality is supposed to derive its name, although this is disputed by some writers. The spring is said to be buried under a pillar in the churchyard of St. Paul's Church, Shadwell.

(12) *St. Agnes-le-Clair Well*, near Old Street, E.C., I have described under "Olden Baths," for it supplied St. Agnes-le-Clair Bath. The waters of the well were deemed useful for skin and eye troubles.

(13) From the twelfth to the sixteenth century miraculous properties were attributed to the *Holy Well in Shoreditch*, which was choked up in the middle of the eighteenth century; Holywell Street, E.C., is named from it. An abbey of Benedictine nuns was built near it in the twelfth century, of which relics remained until the middle of the eighteenth century. In 1904 the well was said to be concealed in a marble mason's yard in Bateman's Row.

(14) Hackney possessed *Churchfield Well*, from which the present Well Street takes its name, and has claims to be considered one of the old holy wells on account of its contiguity to the old Palace of the Priors of St. John of Jerusalem, which formerly existed quite near.

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(15) Tottenham possessed several holy wells. *St. Eloy's* or *St. Loy's* was named after St. Eligius, a French saint, the patron saint of blacksmiths and farriers. The Rev. William Bedwell described it in 1631 as situated near a chapel dedicated to St. Eloy. Later it enjoyed esteem for medicinal virtues, and a Dr. Robinson, in 1840, considered its properties similar to those of the Cheltenham waters. St. Eloy Road probably covers the old well.

(16) *The Bishop's Well* at Tottenham existed in a field near Bedwell's Vicarage, was said to be specially useful for eye diseases, to achieve other wonderful cures, and never to freeze. It supplied the Mosel stream referred to under Muswell Hill. It was destroyed by artificial drainage.

(17) *St. Dunstan's Well*, in Tottenham Wood, was known in the fifteenth century, but was not in use at the end of the seventeenth century. This well is considered by some writers to be one of those from which Muswell takes its name, for Tottenham Wood now forms part of the Alexandra Palace Grounds at Muswell Hill.

(18) The well from which *Mus-well* or *Moss-well* Hill is named was certainly one of the old holy wells, for a chapel dedicated to Our Lady of Muswell existed there in early days, and the well was a great resort of pilgrims attracted thither by the story that a certain King of Scots (name unknown) had been cured of some chronic disease by the waters. The holy well was on the southern side of the hill near the top: there was another well very near, and the overflowings of the two formed a rivulet, named after them "*Mosel*," which entered the River Lea. The pilgrimages to the spring in Queen Mary's days were censured by the Vicar of Croydon as being irreligious instead of holy, on account of the evil conduct of the pilgrims. In the reign of Elizabeth the reputation of the waters vanished, and there is no evidence that they had any medicinal virtues. Up till recent times they were used by the inhabitants as drinking water. In later years a pump was placed over the spring, but the waters now flow into drains. A chapel for nuns and a dairy farm existed in the vicinity of the well, which, with the property surrounding it, belonged to the Knights of St. John of Jerusalem, the land having been conferred upon them by Bishop Beauvais in 1112.

(19) *St. Agnes's Well*, Hyde Park, possibly one of the holy wells, existed as late as 1804, near the head of the Serpentine on its east bank, in a part of Hyde Park formerly known as Buckden Hill. There were two springs: one was used for bathing the eyes, and for the

immersion of children, and is mentioned by Dr. Clippingdale in his paper on West London rivers as the "Dipping Well"; the water of the other, said to be medicinally potent, was sold in glasses by an attendant to visitors, amongst whom were many children of the richer classes, sent by their parents. The water was also taken away in jugs or bottles for consumption at home. It was probably a mild *ferruginous* spring.

(II) SPRINGS AND WELLS OF MINOR IMPORTANCE.

The following springs and wells, of which there is record, cannot be said to have any claim to be considered holy wells. Some of them existed in very early days and have been choked up for centuries, having been used for ordinary drinking purposes before other sources were provided. Several possessed slight medicinal properties but did not become known as "spas." The names of some have been preserved in the localities where they existed. A few still remain to this day.

Those North of the Thames.

(1). *Tod's Well*, a corruption of Gode Well (Good Well), situated in the Clerkenwell neighbourhood, gave its name to Goswell Street, E.C.

Smithfield and its vicinity possessed numerous wells; amongst them were:—

(2) *Fagge's Well*.

(3) *Rad's Well* (Red Well, Rede Well or Rode Well); and

(4) *Loder's Well*.

These, in addition to Tod's Well, helped to feed the River Fleet, which in the neighbourhood of Smithfield was known as the "River of Wells." In Stow's time (1525 to 1605) these four wells were already getting blocked up.

(5) *Crowder's Well*, described in 1661 as having a taste like that of new milk, and being "very good for sore eyes," was situated at the back of St. Giles Church, Cripplegate.

(6) *Aldewyche Spring* existed at the north end of Drury Lane, as the village fountain, covered over and decorated by a cross.

(7) *Peerless Pond*, Baldwin Street, E.C., is described under "Olden Baths."

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(8) Postern Row, near the Tower, indicates the spot where a famous spring, the *Postern Spring*, the water of which was possibly mildly *chalybeate*, used to exist.

(9) *Aldgate Well*, E., Well Street, and Wellclose Square, E., took their names from a well in the vicinity.

(10) Rhodes Well Road, Stepney, E., marks the site of a spring and pond, originally *Rogue's Well*, which was drained by the Regent's Canal early in the eighteenth century.

Two wells at Hackney, beside the holy well previously mentioned, were:—

(11) *Pyke Well*, and

(12) *Shacklewell*, which gave its name to Shacklewell Lane and Row, E.

(13) *Canonbury Springs* were said to have medicinal properties, and it is related that their virtues influenced people to reside in the locality, amongst them being Richard de Cloudesley, whose name is attached to a square and streets near by. From one of these springs the water was in early days conveyed to St. Bartholomew's Hospital in pipes.

(14) *Highgate, N.*, possessed a spring of very mild *chalybeate* water, situated in Southwood Lane. It was formerly used for bathing eyes, and was sold in London as "Highgate eye water."

(15) *Hampstead, N.W.*—*The Old Shepherd's Well*, covered by an arch of masonry, and marked now by a drinking fountain, can be seen half-way up Fitzjohn's Avenue on the right-hand side. From it water was supplied by water-carriers to the villagers of Hampstead until the early part of the eighteenth century.

(16) Bayswater (*Baynard's Water*) had plenty of springs in early days.

(17) A well still exists in Kensington Gardens near the lower end of the Broad Walk, glorified by the name of *St. Govor's Well*, where, as late as 1804, an old woman used to dispense the waters to visitors, on payment of a small fee. It has no claim to be considered a holy well, having been named about 1850 in honour of the first Lord Llanover, after a saint who founded a church at Llanover, near Abergavenny.

(18) *Earl's Court*, Kensington, in 1820, still boasted a *medicinal* spring called *Billing's Well*.

Those South of the Thames.

(19) *Vauxhall Well*, S.W., used for eye troubles, formerly existed on the right-hand side of the Wandsworth Road leading from Vauxhall Turnpike to Wandsworth. It was still there in the early part of the eighteenth century, and it is said that the water was never known to freeze.

(20) *Stockwell*, S.W.—Two wells formerly existed at Stockwell, the derivation apparently being from Anglo-Saxon, *Stoc*, a wood, and *Well*. One of these was near the present Edithna Street, and the other on Stockwell Green.

(21) *Camberwell*, S.E., appears in the Domesday Book as “Ca’brewelle,” but there is no definite record of the well which gave its name to the parish. One author maintained that the spring in Dr. Lettson’s Villa at Grove Hill was the original well of Camberwell.

(22) Three other old wells existed in the vicinity, and *Milkwell* Manor took its name from a well in the neighbourhood.

(23) *Ladywell*, S.E., situated between Brockley and Lewisham, possessed two springs, one of which was medicinal. The latter, a *chalybeate* water, probably is the one which was called the Lady Well, from which the suburb was named in the latter part of the eighteenth century, although records have been found of the existence of the other spring in the reign of Edward III. The mineral well for several years was enclosed by rails, and had a reputation as a general tonic water and for the cure of “sore eyes.” It was situated on the south side of Brockley Lane, and disappeared after the making of a drain about 1865.

(24) At *East Sheen*, on Palewell Common, exists a well. The water is a mild *chalybeate*, and at one time was much used by the inhabitants for eye troubles and bathing the legs.

The names of various streets and places in London suggest that they may have been named after certain springs or wells which formerly existed in the vicinity. Some of these I have mentioned when describing the spas and wells, and have included them again in the following list :—

Bayswater Road, W.
Fountain Dock, Bermondsey, S.E.
Fountain Street, Lambeth, S.E.

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Spring Gardens, Charing Cross, S.W.
Spring Gardens, Stepney, E.
Spring Place, Carlton Road, N.W.
Spring Place, Wandsworth Road, S.W.
Spring Grove, Lambeth, S.E.
Spring Street, Paddington, W.
Spring Street, Farringdon Road, W.C.
Springdale Road, Clissold Park, N.
Springfield Road, St. John's Wood, N.W.
Springfield Park, Hackney, E.
Springfield Lane, Hackney, E.
Well Street, Jewin Street, Aldersgate, E.C.
Well Street, Finsbury Square, E.C.
Well Street, Hackney, E.
Well Walk, Hampstead, N.W.
Wells Road, Primrose Hill, N.W.
Wells Street, Oxford Street, W.
Wells Street, Gray's Inn Road, W.C.
Wells Street, London Docks, E.
Wells Street, Camberwell, S.E.
Wells Place, Camberwell, S.E.
Wellclose Square, Aldgate, E.

(III) OLDEN BATHS OF LONDON.

The most interesting amongst the Olden Baths of London which have enjoyed a reputation for health-restoring properties is the *Old Roman Spring Bath*, because this bath still remains as one of the few relics of Roman London. It was probably built about two thousand years ago, in the time of Titus or Vespasian. It may still be seen at No. 5, Strand Lane (near King's College), on Saturday mornings between 11 and 12 o'clock. It is supplied with clear water coming from springs at Hampstead, and was considered to be the overflow from St. Clement's Holy Well in the vicinity. The bath, rounded at one end and square at the other, is in the centre of a fair-sized vaulted chamber, solidly built, and lit by a little semicircular window; it is formed of thin tile-like bricks, layers of cement, and rubble-stones, all corresponding with the materials of the Roman wall of London, and now patched together with modern concrete. The walls of the chamber have recently been strengthened with modern tiles. The marble stones forming the floor of the bath were in 1893 fitted from the adjoining bath built by Lord Essex. On one side of

the bath are a few stairs or tiers. Its length is 13 ft., breadth 6 ft., and depth 4 ft. 6 in. It is said that the volume of water pours up at the rate of some 10 tons a minute. The bath is now the property of Mr. Glave, of Oxford Street, whose father kept it for his private use, and lived to be 90 years of age. On the wall at the entrance to the bath is the following notice painted on a board:—

Old Roman Plunge Bath.
Open to Bathers all the year round.
This Bath has a continual flow of spring water
(10 tons daily).
Annual tickets only issued,—Two guineas.
Apply 80, New Oxford Street, W.

Charles Dickens refers to this bath in "David Copperfield."

Adjoining the Roman bath and deriving its water supply from it was another bath of heptagonal shape, *The Templar's Bath*, used for three centuries by residents in the Temple, and closed in 1893. It was built in 1588 by the Earl of Essex, whose house was near. The site is now covered by the larder of the Norfolk Hotel, erected in 1880.

St. Agnes-le-Clair Bath, Tabernacle Square, Finsbury, E.C., near the present St. Luke's Hospital, Old Street, is considered to have been first used in 1502, being supplied by the St. Agnes-le-Clair Spring (one of the holy wells of London), although a Roman origin was at one time claimed for it; for in the eighteenth century many ancient copper coins, Roman relics, and other antiquities were discovered in the bath. An advertisement in 1756 speaks of the bath as being "much applauded by the learned physicians of old, and now greatly extolled by the most eminent professors of this age." In 1834 an inscription over the windows was as follows: "St. Agnes-le-Clair Mineral Baths." The spring flowed constantly at the rate of 10,000 gallons every twenty-four hours, and remained at the same temperature at all seasons of the year. The baths were considered to be of efficacy in "rheumatic and nervous cases and headache." In 1845 the Bath House was damaged by fire, and the bath came into disuse. St. Agnes Terrace, between the City Road and Hoxton, now indicates the spot where it formerly existed.

The Peerless Pool, Baldwin Street, City Road, behind St. Luke's Hospital, was referred to by Stow as "one other clear water, called Perilous Pond, because divers youths by swimming therein have been

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drowned." It was enclosed in 1743 and used as a bathing place. In 1790 a library, a bowling green and other amusements were provided for the bathers. Peerless Pond was used as a bath until about 1850, when it was built over and its name is commemorated by Peerless Street and Bath Street, to the north and west of St. Luke's Hospital.

The Cold Bath, Clerkenwell, situated near the River Fleet, or as it was then called, Turnmill Brook, not far from the Clerks' Wells, was a cold spring which in 1697 was converted into a bath by the owner of the surrounding property, Walter Baynes, and was described as "the most noted and first about London." The charge for bathing was two shillings, or half-a-crown if use were made of the chair, suspended from the ceiling, for lowering the patient into the water. The water was *chalybeate* and was considered efficacious in the cure of "scorbutic complaints, rheumatism, chronic disorders, &c." The bath was at the height of its reputation in 1700. The Bath House occupied an area of 103 ft. by 60 ft. In 1815 most of the exterior of the Bath House was removed, and I believe there is now no trace of its existence. The neighbourhood was formerly known as Coldbath Fields.

The Duke's Bath or Bagnio, minutely described by Samuel Haworth in 1683 as "erected near the west end of Long Acre, in that spot of ground called Salisbury Stables," was a stately oval edifice, paved with marble, and within the wall were ten seats, such as were formerly in the baths at Bath. There were fourteen niches in the wall, supplying hot and cold water over fountains. As far as one can determine no special virtues were attributed to the water itself, which was probably supplied from ordinary sources, but it was used as a place where various medicated baths could be administered. There is a record that there was on the lower storey a room for a laboratory in which were "chemic furnaces, glasses and other instruments necessary for making the bath waters." Adjoining the Bagnio there were four little round rooms of varying degrees of temperature. When the Duke of York came to the throne the name was changed to the "King's Bagnio," in 1686.

Queen Anne's Bath was at the back of the present No. 25, Endell Street, Long Acre, now used as an iron-worker's shop. The waters were supplied from a copious spring containing *iron*, and were used for rheumatism and other disorders. It is said that Queen Anne used to bathe there. The walls were inlaid with white and blue Dutch tiles, of the sixteenth century; it had a lofty groined roof. The bath-chamber is now used as a lumber-room next to a forge which occupies

the basement of the premises (November, 1914). The tiles have now been removed and the spring has disappeared. It is supposed that this bath may have been run in connexion with the King's Bath, above mentioned. A sketch of it was printed in the *Builder*, October 12, 1861.

The Bagnio, in Bagnio Court (altered to Bath Street in 1843), Newgate Street, was built by Turkish merchants, and first opened in December, 1679, for sweating, hot bathing, and cupping. The cupola roof, and walls set with Dutch tiles, were described by Hatton in 1708. It was subsequently used as a cold bath.

The Hummums Hotel, in Covent Garden, was formerly the site of a "bagnio or place for sweating" (Arabic, *hummum*, a warm bath), the precursor of the ordinary Turkish baths.

Queen Elizabeth's Bath formerly stood near the site of the King's Mews at Charing Cross, and was demolished in 1831. It was considered to be of fifteenth century architecture, and was a small square building constructed of fine red brick. It had a groined roof of very neat workmanship, formed by angular ribs springing from corbels. I can find no record of the use of waters therein.

At *New End, Hampstead*, a bath house existed in the early days of the Hampstead Spa.

The Floating Baths, on the Thames, usually anchored off Somerset House Gardens, existed in the time of William III and Mary, 1689-1702, and were once visited by the Queen. They became the resort of a low class of society and were allowed to decay.

The Turkish Bath, which closely resembles the bath of the old Romans, was introduced into England and Ireland in 1860, when handsome baths were erected in Victoria Street, Westminster; they were afterwards demolished. The best bath of this class in London used to be the Hammam, opened in 1862 in Jermyn Street, St. James's, and still exists. It is no doubt known to many of the members of this Section.

Since those days many other baths of therapeutical value have been established in London; it is not within the scope of this paper to mention them.

Baths and Wash-houses.—One may add that baths and wash-houses for the working classes originated in 1844, with "an Association for promoting cleanliness among the poor." A bath-house and a laundry were fitted up in Glasshouse Yard, East Smithfield. The Association also gave whitewash, and lent pails and brushes to those willing to

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cleanse their own dwellings. This successful experiment led to the passing of an Act of Parliament "to encourage the establishment of baths and wash-houses," of which there are so many at the present day.

(IV) OLD LONDON SPAS.

I may be allowed to remind you that the word "spa," derived from a Walloon word, *espa*, meaning "fountain," takes its origin from the town of Spa, lying about sixteen miles south-west of Liége, very near the German frontier, in that little country of brave and long-suffering people to whom we owe such an enormous debt of gratitude at the present time. Its chalybeate springs were beneficial to an ironmaster of Liége, Collin le Loup, who purchased lands in 1326 around the springs and founded the town of Spa.

The term "spa" has acquired the meaning not only of a locality frequented on account of its mineral springs, but also of a mineral spring itself. In the latter part of the seventeenth, in the eighteenth, and in one or two instances in the first half of the nineteenth century, it was discovered that a number of springs and wells in and around London possessed medicinal properties in varying degree, containing mostly *iron*, or *magnesium sulphate*, or *sodium sulphate*. Some of these springs were exploited by the proprietors, and "well-houses," pump-rooms, and assembly-rooms were provided, as well as gardens for promenading and taking exercise after drinking the waters. Refreshments and various amusements likely to interest visitors could be enjoyed, and time was made to pass pleasantly in order to encourage a cheerful mental attitude before and after the imbibition of the waters. In fact, just as at all spas of repute, both centuries ago and at the present day, all legitimate amusements were and are rightly encouraged by spa physicians and by the town authorities, so in old London, the amusements peculiar to the generations when the so-called London spas or "spaws" were in vogue, were considered to be advantageous to seekers after health at the springs.

Some of these springs were frequently spoken of as "spas" or "spaws" (according to the spelling in Johnson's Dictionary), the name of the locality or some other distinctive appellation being used as a prefix ; whereas many others, although they enjoyed just as much repute and became "fashionable," were simply called "springs" or "wells" with the name of the locality attached, but might be considered as "spas" with the fuller meaning of that term.

No doubt there were amongst the old London spas a fair number which I will designate "spurious spas," where the discovery of a spring of a slightly ferruginous water, for instance, was made the excuse for providing opportunities for people to assemble, and indulge in all kinds of unnecessary gaieties and dissipation, under the pretence of seeking to repair their shattered constitutions by going to "drink the waters."

Such spurious spas were little better than the "Tea Gardens," the favourite resorts of the middle classes in the eighteenth century, which, in several cases, were the successors of the promenade at the older London genuine spas. Some tea gardens did possess either an old mineral spring or boasted the added cachet of a newly discovered mineral spring, or spring of pure water, not frequently tasted. At these tea gardens, concert rooms, grottoes, fountains, dancing saloons, and refreshment rooms existed. On the other hand, there is not the least doubt that several of these old London spas, especially most of those where the water contained *magnesium sulphate*, or *sodium sulphate*, were of extreme value to some of their frequenters, and rightly deserved the reputation for medicinal virtue which they for a time acquired. For magnesium sulphate is one of the most useful drugs in the hands of the profession for various ailments which tend to depress and make wretched mankind, and it is quite probable that a course of the salt taken in the water of a spring may produce ultimate effects more far-reaching than one can appreciate. It is well to note that a solution of the artificial sulphates of similar strength to the natural waters does not purge to the same degree, so that evidently other agents must be accounted for. In the natural waters, the other salts, the gases, and the nascent state of the constituents also conduce to their greater activity; when natural waters are stored in bottles they lose a certain part of their strength, but remain more powerful than a like solution of artificial salts.

Magnesium sulphate was such a frequent constituent of the waters of the old London spas that I venture to give the following short account of that salt and of sodium sulphate (from a paper by Dr. Gordon Sharp, in the *Pharmaceutical Journal*, January, 1911):—

"*Magnesium sulphate*, formerly known as Epsom salt, English salt, cathartic salt, vitriolated magnesia, physical salt, and bitter purging salt, was first obtained from the Epsom spring; hence the name by which it is commonly called. The nature of the chief constituent of the springs (magnesium sulphate) was discovered in 1695 by Dr. Nehemiah Grew, Fellow of the College of Physicians and of the Royal Society, who published the first account of the

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springs, their constituents and properties, in Latin, under the title 'Tractatus de Salis,' &c.

"In 1697 an authentic English version, 'Treatise of the Nature and Use of the Bitter Purging Salt, Easily Known from all Counterfeits by its Bitter Taste,' was published.

"Grew found 2 dr. of impure magnesium sulphate on evaporating a gallon of Epsom water, and for some time the Epsom springs were the only sources of Epsom salts, which were sold at one shilling an ounce.

"But very soon the salt was artificially prepared in unlimited quantities (1) from dolomite (magnesian limestone), (2) from sea water, and (3) later from other sources.

"It was not until 1823 that Epsom salts were largely employed by medical practitioners, and the salt did not find a place in the London Pharmacopœia until 1851.

"Epsom salt is more efficacious than Glauber salt, and has a more bitter flavour. Rochelle salt is not so reliable as the other two.

"*Sodium sulphate* (*Glauber salt*), sal catharticum Glauberi, or sal mirabile Glauberi, was discovered by Johann Rudolph Glauber in 1658 while distilling hydrochloric acid. It became a cathartic of the highest utility, and held its place until about 1823, when it was ousted by Epsom salt."

The strength of the London aperient waters was not great, and it was necessary to take most of them in such large quantities, in order to produce decided action, that the treatment must have been somewhat irksome, and may account partly for the comparatively short period of years during which they were held in esteem. On the other hand, the utility of dilution as an aid to the purgative action of Epsom salt is exemplified in the case of a farm servant, who, we read, was allowed an extra pint of small beer to "work off" the dose he had taken. But fashion was the great arbiter in deciding the length of life of the London spas, and it appears that the success of some of the earlier ones provoked that remarkable competition amongst them, which appears so extraordinary when one considers the small area of their prevalence. Other factors also came into operation in cutting short their career, one being the rapid increase in the population, necessitating the construction of buildings in their vicinity, which destroyed the rural aspect of their surroundings, thus removing one attribute so necessary for successful spas—viz., a pure and wholesome atmosphere—and also caused the demolition or contamination of some of the springs.

In some cases the abuse of amusements, the introduction of rowdyism and debauchery, and the degeneration of some of the more central spas into haunts of bad characters, led, in a few instances, to the closure of certain of the resorts by the town authorities.

Other spas, distinctly more valuable, both in this country and in foreign countries, came under notice, secured the approval of the medical profession, and attracted the public; so that by the end of the eighteenth century the prosperous and palmy days of the majority of the spas of London and its environs were over, and, in most instances, only a trace remained of those formerly situated in the central regions of the town.

When considering the ingredients of the waters of the old London spas it is necessary to remember the fact that a correct method of analysis of mineral waters was not established until about 1825, and this explains why the exact composition of most of the waters I refer to remained unknown. Physicians from the sixteenth century until the commencement of the nineteenth century had very imperfect methods of determining the active constituents of mineral waters, and it was not until the researches of Berzelius and Struve were completed that a satisfactory system of analysis was established.

Spas North of the Thames.

I have collected particulars of spas and spurious spas on the north of the Thames to the number of twenty, although some of them were of small importance, and four at least—namely, Barnet Wells, Northaw Spring, Chigwell Spring, and Woodford Wells—might, in the days when they existed, be considered strictly as country spas.

I will first call your attention to a little group of spas and spurious spas, to the number of eight, which existed in a small area, not one of them being more than a mile distant from the present King's Cross. These are: (1) St. Chad's Well; (2) Pancras Well; (3) Bagnigge Wells; (4) Powis Spring (Great Ormond Street); (5) Islington Spa; (6) Sadler's Wells; (7) London Spaw; (8) New Wells (Clerkenwell).

The first London spa I mention is St. Chad's Well, firstly because of its association with the name of St. Chad, the patron saint of medicinal springs and wells (see "Holy Wells"); secondly, because it was one of the few holy wells which certainly contained medicinal properties and became popular as a spa with the full meaning of that term, after amusements had been provided.

(1) *St. Chad's Well*, in London, was situated opposite the spot formerly known as Battle Bridge, near the present King's Cross (where the fatal rout of the Britons under Boadicea terminated), its site being now represented by St. Chad's Place, a narrow passage beside the King's

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Cross Metropolitan Railway, next to Willing and Co.'s, 364, Gray's Inn Road, W.C. There is apparently no record of the exact date of the discovery of this well, although its association with the name of St. Chad and the tradition that its waters resembled those of St. Chad's Well at Lichfield, make it probable that it was used for many centuries before it became popular about the middle of the eighteenth century as a purging spring. From then until the beginning of the nineteenth century, a period of about sixty years, it attracted a large number of visitors, amongst others being John Abernethy, the famous but uncouth and irascible surgeon, whose rudeness to patients induced them to believe in his skill. Pleasant gardens surrounded it, and amusements were provided. After 1800 it declined in public favour. In the year 1825 a notice on a board under the gates proclaimed the legend "Health preserved and restored," and an ancient, dilapidated female, known as "The Lady of the Well," used to invite passers-by to enter and "be made whole." In the pump-room was a portrait in oil of a stout personage with a ruddy countenance, wearing a cloak and red nightcap, representing St. Chad. About the year 1830 a circus was erected in the gardens, and a new pump-room, but the attendance fell off, and about 1860 the pump-room was demolished to make way for the new Metropolitan Railway. The popularity of St. Chad's Well endured longer than most of the other mineral springs in the neighbourhood, and, in contradistinction to some of the other spas, always remained respectable as befitting its holy origin. The water contained *sodium* and *magnesium sulphates*, and a little *iron*; it was made hot in a large cauldron and drawn off into glasses; a pint was considered to be an "actively purgative, mildly tonic, and powerfully diuretic" dose. It had a repute for "liver disorders, dropsy, and scrofula."

(2) *Pancras or Pancridge Wells* flourished for a period of about one hundred years from 1697, with intervals of comparative disuse, and were surrounded by a beautiful garden near the Old Church of St. Pancras, on the site now occupied by the Midland Railway at St. Pancras railway terminus. The buildings in connexion with it comprised a house of entertainment, a long room, and two pump-rooms. The waters from different springs were *purgative* and *chalybeate*, and the first proprietor stated that from long experience he could vouch for the fact that the waters were "a powerful antidote against rising of the vapours, also against stone and gravel, and a general sovereign help to Nature." For "obstinate cases of scurvy, king's evil, leprosy, and all other skin diseases," they were extolled. Threepence was the charge for a dose, and

half a guinea was the subscription for daily draughts throughout the season. The water was also sold in bottles, at "six shillings a dozen, bottles and all." At one time, when the company was fashionable, "neat wines, curious punch, Dorchester, Marlborough and Ringwood beers" were provided for those who preferred to quaff them, as well as syllabubs.

(3) *The Bagnigge Wells* were situated in Bagnigge Wells Road, near the Fleet River (now King's Cross Road), near Bagnigge House, considered to be one of the country houses of Nell Gwynne. There is no record of any medicinal use of the waters until 1760. Two wells behind the house in 1757 were tested, and one found to be *chalybeate* and the other a strong *purgative* water. Pumps were erected in a pavilion, gardens were laid out, tea-drinking arbours and seats provided by the side of the Fleet River, which ran through the grounds, and for about fifty years the place became popular amongst all classes of society, although Colman, in a prologue to Garrick's "Bon Ton" (1775), has a sneering allusion to it in the following:—

"Bon Ton's the space 'twixt Saturday and Monday,
And riding in a one-horse chair on Sunday:
'Tis drinking tea on summer afternoons
At Bagnigge Wells with china and gilt spoons."

The charge for drinking the waters was threepence for each person. After various vicissitudes the wells gradually were monopolised by the lower grades of society, for whose delectation threepenny concerts were instituted, and who enjoyed their pipes and beer in the bowers and played bowls or ninepins, whilst their wives and children regaled themselves on muffins and tea, or syllabub and cakes. In 1844 the gardens were closed. In 1858 the spring still existed in the garden of No. 3, Spring Place, now known as St. Helena Street. "Ye Olde Bagnigge Wells" public-house in King's Cross Road, and Wells Street, near Mecklenburgh Square, serve to remind us of this old London spa.

(4) *Powis Well*, near the Foundling Hospital, close to the north-west end of Great Ormond Street, was a mineral spring with water of a "*diuritic* and gently *purgative* quality, good for the cure of sore legs, inflammation of the eyes, giddiness and obstinate headaches, as also in rheumatic and paralytic cases," and was used internally and externally. It had some repute after the early twenties of the eighteenth century, for a period of forty or fifty years, and the waters were also sold in bottles. There was a pump-house, with a long room for music and dancing, but the spa never attained great fame or popularity.

(5) *Islington Spa* occupied part of the site of two of the present small public gardens, opened in 1895, known as Spa Green, Islington. At the back of 6, Lloyd's Row, Rosebery Avenue, W.C., a small room with grotto-work exists, under the floor of which the well remains, blocked up, and under the coping of the proprietor's house at the front is (November 22, 1914) the inscription, "Islington Spa, or New Tunbridge Wells." The latter appellation indicates the fact that the waters of the springs, which were first brought to public notice about 1683 as Islington Wells, were mildly *chalybeate*. Evelyn, in 1686, wrote: "I went to see Middleton's receptacle of water at the New River, and the new spa wells near."

The gardens were finer than those of Sadler's Wells on the opposite side of the New River, and the entertainment rooms included a dancing room, card room, and raffling room. Threepence was the fee for drinking the water, and for eighteen pence a guest could drink the waters, take breakfast, and dance from eleven to three. In 1691 a satire, entitled "Islington Wells, or the Threepenny Academy," indicates that the wells provided an excuse for people to meet for promenading and gossiping, as shown by the following extract:—

"Of either sex whole droves together,
To see and to be seen flocked thither,
To drink—and not to drink the water,
And here promiscuously to chatter."

Ten years later (1701) the better-class visitors ceased attending. In 1719 M. Misson, a Frenchman, portrayed Islington as "a large village, half a league from London, where you drink waters that do you neither good nor harm provided you don't take too much of them. There is gaming, walking, dancing, and a man may spend an hour there agreeably enough." But in 1733 a resuscitation was engineered, and, during the spring months the Princesses Amelia and Caroline, daughters of George II, attended regularly to imbibe the waters—a fact which was sufficient to account for the presence of sixteen hundred people in one morning. Beau Nash was also a visitor. A contemporary writer says: "These waters are rising in fame, and already pretend to vie with Tunbridge. If they are so good, it will be very convenient to all Londoners to have a remedy so near at hand." The water was often administered diluted with ordinary water, as in full strength it was stated by Lady Wortley Montagu to induce vertigo and somnolence. That lady satisfactorily proclaimed the virtues of the waters to the public, and considered she had made them popular.

In the "Humours of Tunbridge Wells," 1734, a writer indicates that the company was very mixed :—

"Light-fingered knaves, who pockets drill,
Wits, captains, politicians, trulls,
Sots, devotees, pimps, poets, gulls."

In 1754 the name "Islington Spa" was adopted. From 1750 to 1770 lodgings were provided for visitors to reside near the wells. This fact shows that Islington Spa had a distinct vogue, which made it a genuine competitor with Tunbridge Wells. After 1770 the spa declined in favour, and was used more as an afternoon tea garden, amusements being still provided; the gardens were beautifully kept until early in the nineteenth century, when encroachments of builders affected the neighbourhood. In 1826 a new proprietor tried to run the place again as a spa, but as the supply of water had considerably diminished, having been diverted probably by building operations, it was soon discovered that the end was near. In 1840 some small houses, named "Spa Cottages," were erected on the site of the gardens, and after 1842 a Dr. Molloy lived for a few years at No. 6, Lloyd's Row, the house of the proprietor in which the well remained, and dispensed the water to his patients at sixpence a dose, or a guinea for the year. In 1860 the spring had ceased to flow.

(6) *Sadler's Wells* (named from the man Sadler, who in the latter part of the seventeenth century established a music-house in that part of Clerkenwell afterwards for some time known as Sadler's Hollow, bounded on one side by the New River Head, near the present Rosebery Avenue) has some claim to have been a holy well used by the monks of St. John's Priory, Clerkenwell, before the Reformation. At any rate, Sadler, digging in his garden in 1683, came upon a flat stone covering a stone carved well of ancient date, which was found to contain a mild *ferruginous* water. He exploited his discovery, and soon the public flocked in hundreds to imbibe the water with "capillaire" (a syrup flavoured with orange-flower water) at sixpence the glass, or a guinea for a season's potations. A Dr. Morton recommended the waters, having been cured of some ailment by their use. Sadler's "excellent steel waters" were said "to be very effectual for the cure of all hectic and hypochondriacal heat, for beginning consumptions, for scurvy, diabetes, for bringing away gravel, stones in the kidney, &c." Proprietors of neighbouring spas inspired publications to damn Sadler's Wells, which may be considered as a spurious spa and did not long

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retain its popularity. But the "Musick House," which in 1718 was described as a great resort of "strolling damsels, half-pay officers, peripatetic tradesmen, tars, butchers, and others that are musically inclined," gradually developed into the famous Sadler's Wells Theatre, where so many distinguished actors and actresses have appeared; amongst them King (the original Sir Peter Teazle in the "School for Scandal"), Samuel Phelps, and Mrs. Bateman. Here the celebrated clown, Grimaldi, who took his farewell benefit in 1828, used to delight for many years the visitors, although in private life at some part of his career he suffered from such severe depression that he consulted a physician, who, not aware of his identity, advised him to "go and see Grimaldi." Of late years the theatre relapsed again into a cheap music-hall, known in the neighbourhood as "Old Sads," a name which seems peculiarly appropriate when contemplating its fallen grandeur. Recently it has been used as a cinema house, and is known by some of the inhabitants of the district as "Sunny Sads." It is said that springs exist under the stage.

(7) *The London Spaw*, although it was dignified with the conjunction of the word "Spaw" with "London," does not appear, as far as one can gather, to have seriously competed with the other spas for the better-class visitors, and may be described as a spurious spa. It existed from 1685 to about 1800, not far from Sadler's Wells and Islington Spa, on the Ducking Pond Fields, Clerkenwell, where ducks were hunted by spaniels, a sport which at that period was very popular. Pepys alludes to the Ducking Pond in his diary. The proprietor of an inn called "The Fountain," in Ducking Pond Fields, found in his garden a spring, probably *chalybeate*, described as being an "excellent tonic water," and, having introduced the spring to the public in 1685 "in the presence of an eminent, knowing, and more than ordinary ingenious apothecary, and other sufficient men," changed the name of the "Fountain" to the "London Spaw," with an ignorant, quackish impudence which is amusing and staggering, and leaves one to imagine that the pretentious title given to his backyard spring was intended to impress the public with the virtues of waters which without their high-sounding title might not have achieved any reputation whatsoever. The poor did not pay for the waters, but they were charged for the beer and other drinks available. The spring was apparently used as an attraction to induce visitors to attend the inn, and take part in junketings and amusements in the garden, drowning the flavour of the waters with that of the "Spaw Ale," brewed on the premises from the

spring. The so-called "spaw" attracted the lower class of visitors for more than a century. In 1733 "Poor Robin's Almanack" says:—

" Now sweethearts with their sweethearts go
To Islington, or London Spaw ;
Some go but just to drink the water,
Some for the ale which they like better."

It is reasonable to believe that the beneficial effect of the tonic water was counterbalanced by the feasting, just as, in the present day, some of the good effects of the recognised British and foreign spas frequented by the richer classes are annulled by the high living at the magnificent hotels where some of the visitors stay. In 1828 the spring had dried up. Two other taverns have successively been built on the site of the old "Fountain" during the course of years, the present "London Spa" public-house having been erected about twenty years ago, represented by Nos. 4 and 5, Rosoman Street, W.C.

(8) *The New Wells*, Clerkenwell, quite near the "London Spaw," was also a spurious spa, like the one just described—that is to say, there did not appear to be much foundation for any belief in the properties of the waters, of which I can find no definite description. But the gardens attached were of some beauty, and contained a theatre—where performances of different kinds took place at five o'clock—a small collection of weird wild animals and reptiles, and a cave. In fact, the New Wells Garden was practically one of the Old London Tea Gardens, with the added distinction of containing a spring, considered to possess slight medicinal virtues. The New Wells flourished in the first half of the eighteenth century. In 1752 the Rev. John Wesley leased the theatre, and it became a Methodist Tabernacle for a few years, and was then demolished for the building of Rosoman's Row houses in 1756 in Rosoman Street, W.C.

I now mention two wells of slight importance, which perhaps scarcely deserved the title of "spas":—

(9) *Sun Tavern Gap*, at Shadwell, marks the spot where a spring was discovered in 1745, which was puffed by D. W. Linden, M.D., "for scorbutic and cutaneous disorders by drinking or bathing"; he said it contained "sulphur, vitriol, steel, and antimony." It was used medicinally only for a short period.

(10) *Hoxton* possessed a well of pleasant aromatic flavour, described as a "balsamic" well. It was discovered late in the seventeenth century, in Charles Square, near Old Street, E.C., and enjoyed repute for a few

years. From 1 to 5 pints were recommended by T. Byfield, M.D., in 1687, to be imbibed daily for a fortnight or three weeks to "set up such a pretty bustle or ferment in nature that maketh gay a well-temper'd Healthy Body." The water probably contained a small quantity of *magnesium sulphate* and *iron*.

The next spa is one of the most important:—

(11) The first reference to *Hampstead Spa*, which enjoyed great popularity in the eighteenth century, was in the reign of Charles II. In 1698 the medicinal spring and 6 acres of land, now known as the Wells Charity Estate, were presented to the poor of Hampstead by the Countess of Gainsborough and her son, and in 1700 an attempt was made to sell the waters in flasks, the water being obtained from a spring in the Well Road. Buildings situated in the street now known as Well Walk were constructed about 1701, to take the place of incomplete ones already existing, and gardens with a bowling green were laid out. The largest room could contain five hundred persons, was used for concerts, and was known as the "Assembly Room"; other rooms were the Long Room and the Pump Room, where a large basin and fountain supplied the water for the visitors. Dr. Gibbons, early in the eighteenth century, said he considered the waters to be "not inferior to any of our chalybeate springs, and coming very near to Pyrmont in quality." The water was then sold in flasks. Hampstead Wells had more claim to the title of a spa with its full significance than many of the other old London spas. The beautiful scenery, the bracing and invigorating climate, a pure *chalybeate* water, and the attractions provided in the way of amusement, including good music, made it very popular with Londoners. It was resorted to in Queen Anne's reign by all kinds of people, distinguished, fashionable, notorious, and uninteresting, some of whom were drawn thither in search of health, others to find amusement and distraction. The famous Kit-Kat Club, founded in 1700, for the promotion of loyalty and allegiance to the Protestant Succession in the House of Hanover, often held its summer meetings in the reign of Queen Anne at the Upper Flask Tavern. The name of the Club was taken from Christopher Katt, a pastry cook, at whose shop in Shore Lane the founders used to meet. Amongst its members were Marlborough, Sir Robert Walpole, Sir Godfrey Kneller, Addison, Swift, and others. A comedy produced at Drury Lane Theatre in 1706, when the wells were at the zenith of their reputation, referred to the assemblies at the Spa thus: "We have Court ladies that are all air and no dress, city belles that are over-dressed and

no air ; and country dames with broad brown faces like a Stepney bun : besides an endless number of Fleet Street sempstresses that dance minuets in their furbeloe scarfs, and their clothes hang as loose about them as their reputations." Other passages in the play do not give the evening entertainments a too savoury reputation. The season lasted from May to October. Some people lodged near the wells, but most of the visitors came from London for the day. The gaming tables were very popular, raffling shops were instituted, and "consorts of both vocal and instrumental musick" were held and dancing encouraged. The fashionable period of Hampstead Spa lasted only about twenty years. Evil days came to the proprietor, and in 1725 the original buildings were transformed into a chapel. But spasmodic efforts were made at different dates to restore its glories, without much success. As early as 1727 a new set of buildings was erected in the Well Walk, and shortly afterwards Dr. John Soame published a book on the wells and waters, which he called the "Inexhaustible Fountain of Health." The price of admission was low, and no great measure of popularity was again acquired amongst the "fashionable" classes. The wells, however, continued to be visited by people who had faith in the water and the pure air of the neighbourhood. In 1801 John Bliss, a surgeon of Hampstead, tried to revive the reputation of the old wells, but with only slight success, and they gradually fell into disuse. For many years the neighbourhood has been known simply as a residential suburb, its proximity to the Heath and general sanitary advantages making it sought after by those requiring a quiet dwelling on high ground within an easy distance of town ; but its beauty is fast disappearing. On the east side of Well Walk, a new stone drinking fountain of New River water was erected in 1855 to commemorate the Wells Charity, referred to above, and is near the source of the old spring, which is situated in the back garden of No. 17, Well Walk. Weatherall House, Well Walk, marks the site of the earliest entertainment room, and Wellside House, on the Wells and Gainsborough Estate, opposite No. 17, Well Walk, was the site of the second set of rooms. It was in Well Walk that Keats lived in 1817, and there he wrote most of his "Endymion."

New Spa, Hampstead.—In 1804 a surgeon named Thomas Goodwin extolled the virtues of a new spring discovered near Pond Street. He compared it to the Cheltenham waters, and called it the "New Spa," Hampstead. It did not achieve any distinction. The site is now occupied by the Hampstead Heath railway station of the London and North Western railway, situated about half a mile from the original spa.

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(12) *Kilburn Wells*.—The site of the well was at the back of the present London and South Western Bank, at the corner of the High Road, Kilburn, and Belsize Road. A tablet on the building records the legend “On this site was situated the Kilburn Wells.” The exact date of the discovery of the spring is not certain. There is fairly satisfactory evidence that it was known and used before the end of the sixteenth century. The water, rising 12 ft. below the surface, enclosed in a brick reservoir, the date 1714 being inscribed thereon, was of bitter taste, milky in appearance, and charged with carbon dioxide. In the days when it was used as a resort by Londoners it was situated in gardens belonging to the Bell Tavern, in pleasant surroundings, near the site of the old Kilburn Priory. It contained *magnesium sulphate*, and was considered to be very efficacious for disorders of the liver, provoked by over-indulgence in the good things of this world. Oliver Goldsmith resided in the vicinity in a cottage, and probably was a patron of the spa. The old Bell Tavern was taken down in 1863, and the present Bell public-house was erected on the site. The well was used for medicinal purposes as late as 1818, but Kilburn Wells was popular as a tea garden as late as 1829. Dr. John Macpherson records in 1871 that the mineral waters were still efficacious, but probably less so than in former times. Its period of greatest prosperity was between 1750 until the end of the eighteenth century. In 1773 it was described as a “happy spot equally celebrated for its rural situation, and the acknowledged efficacy of its waters,” with beautiful gardens and a fine house, where musical and other entertainments and dancing were provided. In 1752 it was referred to in the following lines:—

“ Shall you prolong the midnight ball
With costly supper at Vaux Hall,
And yet prohibit earlier suppers
At Kilburn, Sadler's Wells, or Kuper's ? ”

Kuper's was a tea garden in Vauxhall.

(13) *Marybone Spa* was opened in 1774 in Marylebone Gardens, which consisted of about 8 acres of ground situated opposite the old parish church of St. Mary-le-Bourne, on the East side of the High Street. The 8 acres formed part of the garden of the old Manor House, built in the reign of Henry VIII and used sometimes by Queen Elizabeth as a residence. Devonshire Place, portions of Upper Wimpole Street, Devonshire Street, and Beaumont Street, are built upon these old gardens, the southern boundary of which was Weymouth

Street, then known as Bowling Green Lane : the site of the Manor House itself is now occupied by Devonshire Mews. The situation of this spa on the site of streets now hallowed by the residences of many of our distinguished confrères would help one to imagine that Marybone Spa might have been a health resort of undoubted fame. But, alas, I fear I must condemn it as having been one of the spurious spas. The gardens, laid out in 1738, were intended originally only for amusements, a theatre being provided and all sorts of entertainments, and it was not until 1773 that a spring (possibly *ferruginous*) was discovered and exploited, and the name "Marybone Spa" given to the gardens in 1774. The waters were said to be used "for indigestion, and for nervous, scorbutic or other disorders." The usual refreshments of the period, in addition to the waters, were available. This so-called spa, tacked on as it were to the Marylebone Gardens, endured only about four years, because the land became too valuable; building operations curtailed the extent of the gardens, and destroyed their beauty, although in 1794 a portion still remaining again courted public favour without sufficient response to secure financial success. Trees belonging to the old garden still remain behind some of the houses in Upper Wimpole Street. There was also a large bowling green, which gave its name to Bowling Green Lane, the present Weymouth Street. The orchestra of the garden stood upon the site of No. 17, Devonshire Place, and excellent music, both vocal and instrumental, by good performers, was discoursed.

It is interesting to note that Marylebone Park, of which the present Regent's Park forms part, was a hunting ground in the reign of Queen Elizabeth. In 1600 the Ambassadors from Russia and their retinue rode through the City to hunt in Marylebone Park. It was afterwards sold by Cromwell, with the deer and the timber, excepting that marked for the Navy. Later the site was let on leases, upon the expiry of which the ground was laid out by Nash and renamed "The Regent's Park."

(14) *The New Bagnigge Wells, Bayswater* (Baynard's Water), were opened towards the end of the eighteenth century, in grounds where Sir John Hill, born in 1716, a botanist, considered by the medical profession of that day to be a charlatan and quack, had cultivated medicinal plants from which he prepared tinctures, balsams and "water-dock essence." The Bayswater Bagnigge Wells contained several springs of water lying close to the surface, and remained open until 1854, when building operations for the Lancaster Gate houses were commenced.

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This also may be called a spurious spa, for I can find no record of any valuable properties being claimed for the waters of the springs, but it is probable that they were used as one of the baits to attract the public.

(15) *Kensington* had a mineral *purgative* spring of some repute in 1705 and for a few succeeding years, owned by a Dr. Wright and his partners. It was situated on the site of the manor house of Notting Hill, afterwards called Aubrey House, near Holland Walk, and was enclosed by a "wells house"; it just escaped becoming "fashionable," for at one time there was a scheme on foot to provide the necessary amusements requisite for its transformation into a recognised spaw. In 1874 the wells were located in Aubrey House, found to be polluted, and were blocked up.

The next spa was, no doubt, one which attracted people desirous of attempting a serious "cure."

(16) *Acton Wells*, East Acton, about five miles from the Marble Arch, and half a mile north of the Uxbridge Road, was fashionable during Queen Anne's reign. The water was *cathartic* in its action, and was said to contain "calcareous *Glauber salt*" (Lysons) and to be almost as strong as the Cheltenham sodium sulphate spring. Situated in the garden of Acton Wells House, at East Acton, the three springs were well known in 1706 and soon afterwards attracted many visitors, some of whom came to reside in the neighbourhood during the season. I find no record of a plethora of amusements, so it appears evident that Acton Wells was a steady, respectable spa. The waters maintained their reputation with periods of decay and recrudescence until about 1790. Subscribers paid half a guinea or one guinea for the family for the season's potations, and the water was sold in casks at threepence per quart at the spring, and also by agents in London Town. A pound by weight of the water was said to contain 44 gr. of salts. The Assembly House was converted into a boarding-school about the year 1800. In 1884 the wells were traced to the garden of a farmhouse near Old Oak Common and the Great Western Railway.

Country Spas near London, North of the Thames.

The following four medicinal springs in the outskirts of the North of London may be mentioned, although in the days when they were visited they were strictly country spas:—

(17) *Barnet Well*, Hertfordshire, twelve miles from London, provided

a purgative water of brackish flavour (containing *sulphate of magnesium*), discovered about 1650, and said to be "of great efficacy in cholics." It was situated a mile south-west of High Barnet, in a field to the left of the road from Barnet to Elstree. In the village it was known as "the Physick Well." Pepys visited it in 1664, drank five glasses of water; and relates in his diary the fact that as a consequence he "almost melted to water" in the night. It maintained a reputation for many years, but remained a rural spa without any attempt to bring it into serious competition with other spas in and around London. The waters were little used after 1812. A well-house was built around it, and pulled down in 1840, when a farmhouse was built over its site, the well being then covered and an iron pump erected over it. The pump and well, now useless, can be seen in a field at the back of Well House Farm, off Well House Lane (November, 1914). The villagers still know it as "the Physic Well." A writer in 1662 reported that "the catalogue of the cures done by this spring amounteth to a great number, inasmuch that there is hope, in process of time, the water here will repair the blood shed hard by, and save as many lives as were lost in the fatal Battle at Barnet." Its claim to fame is notified in the following terrible poetic effusion, by a Dr. Witty, in a description of Scarborough Spa, written in 1669:—

"Let Epsom, Tunbridge, Barnet, Knaresborough be
In what request they will, Scarborough for me."

(18) *Northaw*, a beauty-spot near Potter's Bar, Hertfordshire, possessed a "*saline-chalybeate*" spring, which enjoyed a brief popularity in the days when Charles I and Charles II held their Court at their Palace of Theobalds, attended by that arch royal favourite and fascinating personage, George Villiers, the first Duke of Buckingham. The spring was situated in the valley at Lower Cuffley, on the way to Cheshunt, but cannot now be traced.

(19) At *Chigwell*, Epping Forest, there was a spring in Saxon days as evidenced by the derivation, meaning "King's Well," but the medicinal spring at Chigwell Row, with *purgative* properties, discovered towards the end of the seventeenth century, "behind the windmill among the trees," cannot claim any connexion with the ancient spring. The waters were puffed by a Dr. Frewen, in the eighteenth century, and attained a certain degree of popularity.

(20) Epping Forest possessed another mineral spring, probably *ferruginous*, which gave the name to *Woodford Wells*. It was visited

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about the middle of the eighteenth century by numerous invalids, and a house of public entertainment was provided. At the end of the eighteenth century its reputation had vanished. The date of its discovery is not known, but an ornamental fountain covers the site of the well near the "Horse at the Well Inn," formerly known as the "Horse and Groom."

Spas South of the Thames.

I now come to the spas south of the Thames, eleven in number (including Richmond, Epsom Spa, and Shooter's Hill Wells) which were really country spas.

Several springs and wells, south of the Thames, achieved a reputation in the eighteenth century, when there seemed to be a veritable craze for the foundation of spas, owing partly to the success achieved by those north of the river. I will first call your attention to a small central group near the river which resembled in their characteristics the spas and spurious spas of the central group in Islington and Clerkenwell. They are Bermondsey Spa, St. George's Spa, and Lambeth Wells.

(1) *Bermondsey Spa*, whose previous existence is recalled by the name of the railway station, Spa Road, Bermondsey, on the South Eastern Railway, about a mile and a half from Cannon Street Station, existed in a field near a tavern called the "Waterman's Arms," the ancient river Neckinger running near. Thomas Keyse, an artist, bought the tavern and grounds in 1765, and started a tea-drinking garden. In 1770 a *chalybeate* spring was discovered in the grounds, which contained a cascade, and the place was exploited as a spa, a spurious spa I must call it, because there is no evidence that many of the visitors were attracted by the virtues of the water. But great diversions in the way of good music, both vocal and instrumental, were provided, and in the lavishly decorated premises, Keyse, a man of fair talent, displayed his paintings of interiors after the Dutch School; indeed, Sir Joshua Reynolds was a visitor on at least two occasions. A huge picture model by Keyse, of the Siege of Gibraltar, was arranged in the grounds. Admission cost one shilling, the ticket giving the right to the consumption of sixpennyworth of wine: on grand days admission cost half a crown or more, and on those occasions the supply of wine was increased, and with it the artificial gaiety produced by its effect. On such fête days pony races were held, and a firework

display, terminated the ten or twelve hours of uninterrupted enjoyment so dear to the hearts of the young—secured at spurious Bermondsey Spa at such comparatively trifling cost—if one does not take into consideration the consequent matutinal headaches, and the depressing reaction usually engendered by long-continued pleasurable excitement. The place was very well supported for a period of about thirty years, but collapsed soon after the death of Keyse in 1800.

(2) *St. George's Spa* was situated about half a mile from Lambeth Wells in the grounds of the "Dog and Duck" Tavern, near some pools in the marshy land of St. George's Fields, where the sport of duck-hunting by dogs used to be a favourite pastime. The *aperient springs* were first mentioned in 1695, and Dr. John Fothergill stated they would "cure most cutaneous disorders, and be useful for keeping the body cool, and preventing cancerous affections." In 1731 the "Dog and Duck" assumed the title of "St. George's Spa," and the water could be consumed on the premises for threepence, or taken away at twelve shillings per dozen bottles, or fourpence the gallon. New buildings were erected, with a long room containing an organ, and the place was frequented by visitors who had faith in the powers of the spring. Mrs. Thrale, in 1771, by the advice of her great friend, Dr. Samuel Johnson, used to take the "Dog and Duck" waters. On this occasion, for once at least, the learned lexicographer assumed the privilege of prescribing, usually relegated to ordinary doctors of medicine; let us hope that the "Vanity of Human Wishes" was not evidenced in the aspiration he formed of curing Mrs. Thrale, when posing as a medical man: let us hope that, through his advice, Mrs. Thrale was cured of the disorder from which she was suffering—that her complexion was improved and that her body was kept cool. We may assume that "cancerous affections" were warded off, for she died in 1821, at the age of 81, from the effects of a broken leg, fifty years after taking her first course of the "Dog and Duck" waters. The place flourished, at least financially, with various up and downs, until 1787, when the licence was withdrawn on account of its having become the haunt of bad characters and even criminals. In 1811 the building was demolished and Bethlehem Hospital was erected on the site of the house. The sign of the inn—a dog with a duck in its mouth—is to be seen to-day, fixed in the wall of the hospital garden, but the exact site of the old spring is unknown. Walter Besant, in his interesting novel, "The Orange Girl," frequently mentions the "Dog and Duck" Spa. It is amusing to note that the translator into French of a work on English

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mineral waters, described the "Dog and Duck Spring" as a broth, made by stewing a dog and a duck, and he seriously added some remarks of his own concerning the national fondness of the English for dog and duck soup.

(3) *Lambeth Wells* must be considered a genuine spa. Its two springs of *purging waters*, situated in Three Coney Walk—now the crowded Lambeth Walk—near Lambeth Palace, having been discovered late in the seventeenth century, were specially provided with amusements to encourage the populace to absorb the waters. A house was built over the wells, and surmounted with a gilded ball. The usual musical entertainments were inaugurated. An advertisement, in 1721, stated that "consorts of very good music, with French and country dancing," were arranged for, and also gave notice of the fact that "attendance will be given every morning to any gentlemen or ladies that have occasion to drink the waters." The price of admission was threepence. The water was supplied to the neighbouring St. Thomas's Hospital and to other purchasers at a penny per quart, its chief use being for the relief of disorders of the liver and stomach. After 1736 the popularity of the wells gradually waned, and soon after 1752 the company became so mixed that the licence was taken away. Ultimately, the Fountain Tavern was built on the site of the House of Entertainment, and the present modern and glaring Fountain Public-house, rebuilt, marks in Lambeth Walk at this day the site of the departed glories of Lambeth Wells.

I now come to a group of four spas more to the south and more to the west, whose waters had a great reputation—namely, Dulwich Wells, Sydenham Wells, Beulah Spa, and Streatham Spa. Beulah Spa was inaugurated as late as 1828, and endured until 1855, thus having the distinction of being the last of the London spas to be exploited, whilst its neighbour, Streatham, maintains the honour of being the only one of the Old London spas where the water can be drunk at the present day with beneficial effect.

(4) *Dulwich Wells*.—In 1740, Professor Martyn, F.R.S., by request of the proprietor, examined the water of a spring discovered by digging for a well in the garden of the old "Green Man" tavern, situated about a mile south-east of the present Dulwich College (which was founded by Alleyn, a famous comedian in King James's time), on the borders of Dulwich Common, at the junction of Lordship Lane and Dulwich Common Lane. He sent a report of the waters to the Royal Society, stating that they had *purging properties* when drunk fresh in the

quantity of five half-pint glasses, the taste and smell being "sulphurous." The "Green Man" burst into fame, and under the name of "Dulwich Wells" the waters were advertised, drunk on the premises, sold in the streets of London, and also supplied regularly to St. Bartholomew's Hospital. Popularity endured for over forty years. The wells then gradually came into disuse, and by the end of the eighteenth century the "Green Man" had been converted into a school under the name of "Dulwich Grove," and it was here, under the fostering care of Dr. Glennie, that Lord Byron passed two years as a pupil (1799-1801). Subsequently the "Grove Tavern" took the place of the old school-house, followed in 1860 by the present Grove Hotel, the garden of which, now used for open-air concerts, contains no trace of the spring. The adjacent pretty avenue, called "Cox's Walk," records the name of the proprietor of the "Green Man." A peculiarly worded advertisement, in 1762, states: "The purging waters now in their proper season for drinking. The Great Breakfast Room at the 'Green Man,' Dulwich, opened 16th May, 1748, and continued every Monday during the Summer season, at one shilling each person."

(5) *Sydenham Wells*, mentioned twice by Evelyn in his Diary in 1675 and 1677, and once by Nicholas Culpeper in his "English Physician," in 1653, was often called "Dulwich Wells," on account of its proximity to Dulwich, and sometimes "Lewisham Wells," for it was also near Lewisham, and when the waters first began to be popular Sydenham was merely a hamlet. They had been known at the beginning of the seventeenth century, and were about twelve in number, near together. John Peter, physician, in 1680, recommended that the water should be taken hot, mixed with a little milk. In 1699, Dr. Benjamin Allen, in the "Natural History of the Mineral Waters of Great Britain," described the water as "a water medicated with salt of the nature of *common salt*, but with a nitrous quality and a little more *marcasitical*" (containing *iron pyrites*). The springs were brought into notice by their supposed effect on a poor woman, who about 1648 drank the waters and was cured of some dreadful disease. The waters were sold in the London streets, and imbibed by visitors at the wells. It is recorded that the poorer folk who wished to take a course of the waters used to lodge in huts on Sydenham Common. No effort was made by the proprietors to provide amusements: the place remained a simple rural spa until towards the end of the eighteenth century, the Wells House being a cottage, for some time known as the "Green Dragon." Wells Road, constructed eighty years ago, covers one of the wells;

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another was filled up about twenty years ago. Wells Park, adjoining Wells Road, takes its name from the springs. George III used to visit the old cottage, remaining there for several hours, his escort of Life Guards being stationed around the cottage. The following doggerel verse, appended to a view of the grounds and buildings, memorises the names of the wells and of one of the proprietors:—

“ And there you will find a wild rural retreat,
From time immemorial called Sydenham Wells,
With old Betty Evans, complacent and neat,
And a Gypsy, if wish'd, who your fortune foretells.”

(6) *Beulah Spa*, the last of the springs in the environs of London to be inaugurated as a spa, was the name given to the mineral spring at Upper Norwood, known to the residents of the surrounding districts in the latter part of the seventeenth century. It achieved a reputation between 1831 and 1854, having been described by Dr. Weatherhead in 1832, and was situated in a beauty-spot on the slope of a hill called Beaulieu Hill, about 300 ft. above sea-level, surrounded by 25 acres of garden, lawns, and woods, containing a lake. They were laid out in 1828, and commanded pretty views of the country around. There is no authentic information to indicate the first discovery of the spring. It is said that it had been in use for many years before its virtues were extolled in 1831. The water, according to Professor Michael Faraday, was very strong in *magnesium sulphate*, each pint containing:—

							Grains
Sulphate of magnesia	...	...	...	...	...	...	61·35
Chloride of sodium	...	...	...	...	...	...	17·74
Muriate of magnesia	...	...	...	...	...	...	9·28
Carbonate of lime	...	...	...	...	...	...	7·80
Carbonate of soda	...	...	...	...	...	...	1·90
							98·07

The water was drawn from a rockwork enclosure, by a glass vessel which was let down by a pulley. The yearly subscription was a guinea and a half, or three guineas for a family, and the water could be drunk at the spa or delivered to houses at two shillings per gallon.

A rustic lodge acted as sentinel to the grounds, and the spa buildings comprised an octagon reading-room and an orchestra; the well itself was covered by a thatched hut, built in the form of an Indian wigwam. A special seat in the garden received the name of “Lady Essex’s Seat,” from the name of the lady who used to monopolise it—possibly to the

annoyance of the other visitors desirous of admiring the view from the same spot. The amusements comprised military bands, concerts, dancing on the lawns and on platforms, and archery, as well as a camera obscura. Charitable fêtes were held, and also fêtes to enrich the proprietors; on the latter occasions the charge for admission was increased to half a crown, the ordinary charge being one shilling. Soon after the opening of 1831 the beauty of the gardens, the salubrity of the atmosphere, and the reputation of the waters, speedily obtained for Beulah Spa a popularity amongst the richer classes comparable to some extent with that of Ranelagh and Hurlingham of the present day. In 1833, the Duke of Gloucester, brother of William IV, used to stimulate his jaded liver by potations at the spring, and thereby materially assisted in establishing on a sound basis the fortunes of the spa, which had been already helped along by the attendance of Mrs. Fitzherbert as a patient. In fact, the place became "fashionable," and, being at some little distance from London, most of the visitors would be obliged to drive down in their carriages or in hired vehicles; coaches ran several times daily between the "Silver Cross," at Charing Cross, and the spa. This popularity was maintained for about ten years; after 1844 the spa languished for a time, but from 1851, under new management, it had a brief evanescent period of renewed glory, which culminated in a rather rapid collapse in 1854, the spa being closed in the following year, 1855.

In 1903, Mr. Alfred Stanley Foord visited the place, then reduced to $6\frac{1}{2}$ acres, and called "The Lawns," and found parts of the gardens existing, with the well about 12 ft. deep, full of water. The Beulah Spa "Hydro and Hotel," now in the vicinity, serves to remind us of the departed glories of the place (November, 1914). The late Mr. C. H. Spurgeon, the famous preacher, lived in the next house to the hotel.

In the forties or fifties of the last century a sentimental song was published, bearing a view of the spa on the outside page; the song was entitled, "I met her at the Beulah Spa."

(7) *Biggin Hill*, Norwood, half a mile to the north-west of Beulah Spa, possessed a very mild aperient spring facing a neighbouring pond, containing *magnesium sulphate*, *sodium sulphate*, *calcium sulphate*, and *sodium chloride*, discovered in 1809. Trials of the water influenced the following opinion: "It is beneficial in scrofulous, rheumatic, and bilious complaints; in cases of impaired constitution by long residence in hot climates, or the too free use of spirituous liquors, it has proved more

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beneficial than any other spa water in this kingdom." There is no evidence of its having acquired any special reputation, nor of its having attracted any considerable number of visitors, excepting residents in the neighbourhood. It was closed in 1898.

(8) *Streatham Spa* was one of the most important of the London spas. The existing Streatham Well is probably the only one of the medicinal springs of the environs of London where the water still remains uncontaminated and can be drunk with beneficial effect at the present day. But the spring now in existence is not one of those discovered in 1659 and resorted to until about 1792.

The famous original springs were discovered in 1659 by labourers engaged in weeding, who drank some of the water and found it purgative. The owner sank three wells, of which one is said to have been emetic, another useful in expelling intestinal worms. The principal constituent was *magnesium sulphate*. Dr. John Rutt (1757) stated that the Streatham water contained 200 gr. of "minerals" per gallon.

The waters were covered over, and drawn from the wells by pumps. The reputation of the water having spread, the wells house, with large stabling attached, was rebuilt on the spot now occupied by the County Council Rookery Pleasure Gardens at the top of the Common (November, 1914). At the beginning of the eighteenth century the place was much frequented, and for years visitors of distinction as well as many others took advantage of the therapeutical value of the waters and of the climate, the Common being used as a fashionable open-air promenade. Concerts were given and other gaieties were indulged in, but there is no evidence to show that the springs achieved a similar degree of support to those of Hampstead Wells, and two or three others already mentioned. Periods of prosperity then alternated with periods of neglect, but in 1744 the spa was still popular, and as late as 1755 "Assemblies" were still held. From 1717 onwards the water was on sale at many of the London coffee-houses, a very convenient arrangement for gourmands. It must have been a most satisfactory reflection to consider, whilst they were consuming their libations at the coffee-house and enjoying the good cheer provided, that on leaving the house they would be able to purchase a bottle of Streatham Spa water, the effect of which on the following morning would remove all traces of the dissipation of the previous evening by rectifying their disordered livers, and warding off cephalic pains and attacks of the "spleen." One can imagine the

famous Dr. Johnson, seated at a table at the celebrated "Cheshire Cheese" surrounded by a group of his admiring intimates, being influenced when hesitating as to whether he should drink an extra bottle of wine by the consoling thought that he would be spared the trouble of journeying on the following morning to his favourite spa, *if* he could only remember to put in his pocket, when leaving the coffee-house, a bottle of the renowned Streatham Spa water. For Dr. Johnson, from 1766 until his death in 1784, was one of the most enthusiastic supporters of Streatham Wells, although the spa was at that period gradually declining in public favour. . He was a frequent visitor to the Wells, enjoying a walk over the Common, on the west side of the High Road, from Thrale Place, where he was often the welcome guest of his friend Mr. Thrale, the wealthy and cultured brewer, who also entertained Burke, Goldsmith, Reynolds, Garrick, and other well-known men.

The old well was closed in 1792, possibly on account of contamination, but a little wooden structure covering the well with a pump, can be still seen (November, 1914) in the old garden of the "Rookery," now converted into the County Council Pleasure Gardens.

About this time (1792) another spring had been discovered at a distance of about half a mile on the east side of the village of Streatham, at the bottom of Wells Lane on Streatham Common, and this is the second well already referred to, which remains to this day. This new well did not enjoy the same popularity as the old. One writer, Miss Priscilla Wakefield, wrote that early in the nineteenth century the spring "would probably be more highly esteemed for its medicinal qualities by the Londoners, if it was not so near home, as the water is sent in considerable quantities to the hospitals." Lysons, in 1811, states that Streatham water was "still held in considerable esteem," but "there are no accommodations for persons who come to drink it on the spot, yet the well is much resorted to by those who cannot afford a more expensive journey." Later in the century the garden of the "wells house" was used as a tea garden until about 1860, and it is not probable that the visitors paid much attention to the water; the "wells house" was built of brick, with a bust of Aesculapius over the doorway, and on the north side of the house was a room containing the pump for the well, where the water could be drunk on the premises at a penny the glass. It was then sold in bottles at sixpence per gallon, and delivered to all parts of London at a shilling per gallon. The spring and pump still exist in the Valley Road on the south side of Streatham

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Common, in the old "wells house" forming part of Messrs. Curtis Brothers' dairy-farm, and the water can be tasted on payment of a small sum. A pamphlet relating to the wells, recently obtained (November, 1914), states that "the water rises at a temperature of 52° F. When recently pumped up it has a slight odour of sulphur, is sparkling and bright, and although it contains much magnesium sulphate, it is not unpleasant to the taste; on the contrary, it leaves behind it a freshness which is grateful to the palate." The pamphlet also states that the water is delivered to all parts of London daily, sent to all parts of the United Kingdom, and is useful for liver complaints, indigestion, jaundice, and bilious attacks.

There is now scarcely any local sale for the water, but the attendant who dispenses the fluid states that she drinks a glass of this water every morning with satisfactory results. The following is an analysis made in 1895:—

"SAMPLE OF MINERAL WATER FROM THE WELL AT STREATHAM, IN THE POSSESSION
OF MESSRS. CURTIS BROTHERS, VALLEY ROAD.

Magnesium sulphate	...	...	...	...	415·10 gr. per gallon
Sodium chloride	...	...	...	...	19·65 gr. „
Ferrous carbonate	...	...	...	...	3·04 gr. „
Potassium chloride	...	...	...	...	Traces
Calcium carbonate	...	...	...	...	76·67 gr. „
Sodium carbonate	...	...	...	...	18·00 gr. „

The water is naturally charged with carbonic acid. Taken internally it would act as a mild aperient.

REDWOOD & DE HAILES."

This shows 52 gr. of sulphate of magnesia in a pint of the water, a proportion which is much greater than the Epsom spring, from which 2 dr. could be procured from each gallon by evaporation.

Country Spas near London, South of the Thames.

The three following spas were country spas near London—namely, Richmond, Epsom, and Shooter's Hill.

(9) *Richmond Spa*.—In the gardens of Cardigan House, Richmond Hill, is the old Richmond Well, but the exact location cannot be determined. The well was originally found about 1689, and was mentioned by Dr. Benjamin Allen, who said "This water purgeth well, but I think scarce so much as Epsom and Acton, but more smoothly." No doubt the spring contained *magnesium sulphate*. A few years afterwards an

entertainment house was erected, in which dining, assembly, card, and raffling rooms were arranged, and the public began to collect in large numbers, to drink the waters and enjoy the fresh air in the broad walks, and the garden "nearly 300 ft. long, cut out of the descent of the hill, with a prospect of all the country about." One entrance was in Richmond Hill, the other in the lower road (Petersham Road). The usual "Consorts and Musick, both Vocal and Instrumental, by principal Hands and best Voices," were given, and dancing was arranged for; also gaming and raffling; stabling and coach-houses were also attached. The attendance was so great that the price of admission was soon raised, in order to keep out undesirable people. The place was freely advertised, and information given about the tides, for probably the majority of the people journeyed to the Spa by water, along the Thames. One of these advertisements states that "the Tyde of Flood begins at one o'clock in the afternoon and flows till five, ebbs till twelve for the conveniency of returning." In 1724 there were balls at Richmond Wells every Monday and Thursday during the summer season. For more than half a century Richmond Wells was a popular resort, partly on account of the beauty of the position and the attraction of the amusements provided, and partly on account of the waters. One advertisement (1730) was addressed to "all gentlemen and ladies that have a mind either to raffle for gold chains, equipages, or any other curious toys and fine old china; and likewise play at quadrille, ombre, whist, &c., and on Saturdays and Mondays during the summer season there will be dancing as usual." Breakfasts, dinners and teas were supplied, as at some of the similar spas previously mentioned. After 1750 the wealthy classes appear to have withdrawn their patronage from the Wells, and it was found necessary to lower the price of admission in order to attract the public. After a few years the place as a resort became of unsatisfactory repute, and complaints were made by the dwellers in Richmond of the noise and disturbance inflicted on them by the Londoners after indulging in potations, which, judging from the rowdiness of the company, could not have consisted of the water of Richmond Spa. In 1780 the Richmond Wells Spa was no more, and in 1866 the entertainment house was demolished.

(10) *Epsom Spa*.—The town of Epsom is associated in the minds of most people with Epsom salts, discovered in 1695, Epsom Races, started in 1739, and Epsom College, the splendidly equipped public school for boys, first established in 1855. *Magnesium sulphate*, the active principle of the water of Epsom Spa, was prepared by evaporation

by Dr. Grew about 1695, from the water of the spring discovered in 1618 on Epsom Common, and at first was sold at five shillings the ounce, the demand being very great. I have referred to the subject in my introductory remarks on spas. The story goes that Henry Wicks during the dry summer found a small hole on the Common filled with water and enlarged it for the benefit of his cows, who contemptuously refused the proffered fluid. Their rejection of the water aroused the curiosity of Henry Wicks, who experimented on himself, and made the discovery that it possessed purging properties. The spring rapidly became known, and people began to frequent it in order to test its virtues. Lord North mentions the wells as being famous in 1645, and claimed the credit of having first made known the Tonbridge and Epsom waters "to the citizens of London and the King's people." Many foreigners of distinction visited England on purpose to drink the Epsom waters. By 1668 many doctors advised a visit to Epsom, and a little later the Court of Charles II and other fashionable folk visited Epsom in such numbers that in 1684 an announcement in the *London Gazette* stated that "the post will go every day to and fro betwixt London and Epsom during the season for drinking the waters."

A wells house was erected, containing a ballroom, gaming room, and other rooms, and two bowling greens were established on the Common near the wells house, so that there was no lack of amusements provided for visitors, whilst taverns, inns, and coffee-houses soon flourished in the town. A fine inn (the New Inn) was built—at that time said to be the best of its kind in England—since called "Waterloo House," which still exists, but is not used as an inn. In later days, about seventy or eighty years ago, the assembly room of this inn was famous as the scene of cockfights on Sunday afternoons.

Epsom was often visited by Charles II, who raced and played bowls there, and built for his favourite, Nell Gwynne, some stabling in Church Street, known as "The Farm," now used as a private house. In 1667 Pepys wrote in his diary, "To Epsum, by eight o'clock, to the well; where much company. And to the Towne to the King's Head; and hear that my Lord Buckhurst and Nelly are lodged at the next house, and Sir Charles Sedley with them: and keep a merry house." In his journal in 1663, Pepys comments on the town being so full that he could not obtain a lodging nearer than Ashstead. Pepys was evidently a great frequenter of spas. I have already referred to his visit to Barnet Wells, on the occasion when he made himself ill by drinking the waters. In the season many of the company breakfasted at the wells and enjoyed

music, dancing and equestrian exercise on the downs, where races, cudgelling and wrestling matches were held in the afternoons. In the evenings, assemblies, private parties and card parties helped to keep up the spirits of the noble and citizen visitors, who flocked to the spa in large numbers in search of health and amusement or both.

About 1706 an apothecary named Levingstone bought land in the town, sank a well, erected a ballroom, a gambling room, and shops and houses as a business speculation, and gradually diverted the visitors from the old wells on the Common to the new wells in the town. In order to ensure success for his venture he bought a lease of the old wells, which remained closed until his death in 1727. Shortly before this date the new wells had begun to lose popularity. When Queen Anne held her court at Windsor, her Consort, Prince George of Denmark, frequently visited Epsom to drink the waters. In 1736 Mrs. Mapp, the notorious "female bone-setter," plied her calling at Epsom, and gave a fillip to the consumption of the waters.

John Toland, writing about 1720, says that the waters were "beneficial in gently cleansing the body, in cooling the head, and purifying the blood; the salt, that is chymically made of 'em, being famous over all Europe. . . . From the ring on the most eminent part of the Downs I have often counted above sixty coaches on a Sunday evening. . . . As England is the plentifullest country on earth, so no part of it is supplied with more diversity of the best provisions, both from within itself and from adjacent villages, than Epsom. The nearness of London does in like manner afford it all the exotic preparatives and allurements to luxury, whenever any is disposed to make a sumptuous banquet, or to give a genteel collation. You wou'd think yourself in some enchanted camp to see the peasants ride to every house with the choicest fruits, herbs, roots, and flowers, with all sorts of tame and wild fowl, with the rarest fish and venison, and with every kind of butcher's meat, among which Bansteadown mutton is the most relishing dainty." Later he adds, "even Venus had a mole, and gossiping is the greatest objection I have ever heard made to Epsom."

After the death of Levingstone the original well on the Common was resuscitated and the old rooms were improved, but the spa never acquired any approach to its former glory, and was used more as a resort of dwellers in the locality. When, in 1753, Dr. Richard Russel preached the virtues of sea bathing, Epsom as a health resort fell into complete disfavour. At this time Bath had also come into public favour as a health resort. With a last despairing effort Dr. Dale Ingram, between

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1760 and 1770, advertised a preparation of magnesia obtained from the mineral water, and opened the rooms for public breakfasts, but without success. In 1804 the wells house was demolished; a house was built on the surrounding ground, and the well was left intact. The old well still exists on Epsom Common in the garden of the modern house known as "The Wells."

Shooter's Hill Wells, in Kent, near Greenwich, of which there were several, some at the foot and others at the summit of the hill, acquired a reputation about 1675 as "The Purging Wells," and "with a brisk and bitterish taste" were considered "medicinal for internal and external griefs." The well at the foot was discovered by Mr. Godbid about 1673. John Evelyn records the fact that he drank these waters, and it is reported that Queen Anne also used the springs. A "Wells-House" was erected over one of the wells, but no special diversions were introduced, and the spa remained quite rural. Invalids of the neighbourhood imbibed the fluid as late as 1884. In 1840 a quart of the water contained 151 gr. of solids, of which 58 per cent. was *magnesium sulphate*, so that each quart contained about $1\frac{1}{2}$ dr. of Epsom salt. At one time (about 1700) Epsom salt was prepared from the water by evaporation. The site of the most used well was a little distance behind the present Royal Military Academy.

The foregoing account of the obsolete spas of London and its vicinity, imperfect as it is on account of the necessity of omitting many interesting details, and of curtailing the paper in order not to tax your patience unduly, is sufficient to prove that in many instances the London spas were useful and valuable, and could be regarded as health resorts for country people as well as for Londoners. One must remember that in the days when they were made use of, the facilities for undertaking journeys were meagre and imperfect, and those of our country spas then known had not attained any great degree of excellence. But in the present day the spas of Great Britain compare favourably with the foreign spas. Valuable waters and climates of diverse character, excellent installations of baths with modern equipments and adjuncts, and amusements of a non-exciting order, are to be found at the British spas. And they possess one other vital necessity which completes and makes them really valuable and popular, the presence of competent physicians of ability and scientific attainments, whose duty and pleasure it is to guide and control the patients committed to their charge, and to secure for them the greatest possible amount of good during their pilgrimage.

I will conclude by calling your attention to the following abstract from a paper I read before the West Kent Medico-Chirurgical Society during the year of my Presidency in 1900, in which I mentioned the foreign spas likely to be useful for the malady then under consideration. The passage was instigated by the attitude of the German Emperor during the Boer War:—

"But our own native land also offers a number of spas of varying climates and attractions, one or other of which might be chosen to suit the individual patient according to her necessities and ideas. And in these days of international complications we may be compelled to make more use of them for many diseases than has been the custom hitherto."

At this date I can say with confidence and emphasis that in these days of internecine strife, and in future years, it *will* be absolutely necessary to make more use of the British health resorts and spas for patients requiring climatic and spa treatment.

BIBLIOGRAPHY.

- ALLAN, THOMAS. "The History and Antiquities of London." 1828.
 "Archæologia," vol. xxv.
 ARCHER, J. WYKEHAM. "Vestiges of Old London," 1851.
 BESANT, Sir WALTER. "The Orange Girl," 1899.
 BIRCH, G. H., F.S.A. "London-on-Thames in Bygone Days, 1903.
 BOSWELL, JAMES. "Life of Samuel Johnson."
 BREASTED, J. H. "History of Egypt," 1906.
 BUDGE, E. A. WALLIS. "Gods of the Egyptians," 1904, vol. i.
Idem. "History of Egypt," vol. vi.
 "Cassell's Guide to London," 1913.
 CLIPPINGDALE, S. D. "London as a Health Resort and a Sanitary City," *Proc. Roy. Soc. Med.*, 1914, vii (Baln. Sect.), pp. 33-44.
Idem. "West London Rivers," *West London Med. Journ.*, 1909, xiv, pp. 1-21.
 DARLINGTON. "London and Environs."
 DIPROSE, JOHN. "Some Account of the Parish of St. Clement Danes Past and Present," 1868.
 "Encyclopædia Britannica," 11th ed., 1911, vol. xvi.
 FITZGERALD, PERCY. "Picturesque London," 1890.
 FOORD, ALFRED STANLEY. "Springs, Streams, and Spas of London," 1910.
 GALE. "Norwood and Dulwich Past and Present," 1890.
 GOULD, S. BABING. "Lives of the Saints."
 GROSS, ALEXANDER, F.R.G.S. "The A.I. Guide and Atlas to London."
 HECKETHORN, C. W. "London Memories," 1900.
Idem. "London Souvenirs," 1899.
 HOME, GORDON. "Epsom—Its History and its Surroundings," 1901.
 JONSON, BEN. "London: Historical and Descriptive," 1906.
 KNIGHT, CHARLES. "London," 1841.
Lichfield Diocesan Magazine, February and April, 1904.
 LUCAS, E. V. "The Visit to London," 1902.
 PEPPY, SAMUEL. "Diary."

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- POTTER, GEORGE. "Hampstead Wells," 1907.
POWELL, H. "History of Epsom," 1825.
RICKETT, ARTHUR COMPTON. "The London Life of Yesterday," 1909.
RUTTY, JOHN. "A Methodical Synopsis of Mineral Waters, &c.," 1757.
SHARP, J. GORDON. "The History of Glauber's, Epsom, and Rochelle Salts," *Pharmaceutical Journ.*, January, 1911.
STOW, JOHN. "Survey of London," 1633.
"Streatham, Old and New." (By H. B.)
THORNBURY. "Old and New London."
TIMBS, JOHN, F.S.A. "Curiosities of London," 1868.
WROTH, WARWICK. "London Pleasure Gardens of the Eighteenth Century."

Dr. PERCY LEWIS proposed a vote of thanks to the President for his address.

Dr. FORTESCUE FOX, in seconding the vote of thanks, said that this was the only Section of the Society which was definitely associated with *places*. The fact explained and justified an occasional excursion into historical and topographical lore. The President's address would form a valuable record of a bygone chapter of hydrological tradition in London.

Balneological and Climatological Section.

January 14, 1915.

Dr. SEPTIMUS SUNDERLAND, President of the Section, in the Chair.

DISCUSSION ON THE VALUE OF MEDICAL BATHS FOR INVALID SOLDIERS.

THE PRESIDENT (Dr. Septimus Sunderland) stated that the Council of the Section were anxious to assist in the alleviation of the sufferings of their militant countrymen during the War. They were under the impression that many of the soldiers invalided from the Front, suffering from the effects of injuries, exposure to cold and wet, and the great nervous strain incident to military service, would receive much benefit from treatment at British health resorts.

In order to obtain some definite opinions from the Members of the Section they had arranged that this meeting should be devoted to a discussion on the subject, and hoped to be able to come to some definite decision.

The Value of Medical Baths for Invalid Soldiers.

By R. FORTESCUE FOX, M.D.

THE treatment of wounded and invalid soldiers by means of climate and medical baths is a matter that closely concerns the Section of Balneology and Climatology. Our Section represents in this country a branch of medicine in the study and elucidation of which it has been engaged for twenty years. But I conceive that at the present time this is a subject that, outside the limits of the Section, must appeal to our colleagues the physicians and surgeons who are devoting themselves to the treatment of military cases in our hospitals. It concerns them because it supplements their work. And we have also reason to extend our view a little further, because so large unfortunately are, and will be, the numbers of sick and wounded, that the practical issues

arising out of the matter of this discussion will make their appeal to the public at large, and to those who are responsible for the public service.

The question has therefore a certain urgency, a little removed from the usual academic atmosphere of our meetings, and I gladly accede to the request of the Council to open its discussion on this the first available occasion.

In setting forth the value of medical baths for invalid soldiers, I shall rely upon a threefold argument: In the first place, historical evidence; secondly, the contemporary practice of other countries; and lastly and chiefly, the known facts as to the action and uses of baths which have afforded us in recent years the sure foundation of medical hydrology.

It is true that, like preventive medicine, the treatment of chronic disease is a comparatively tame affair. The after-treatment of the sick or wounded soldier presents but little opportunity for brilliant discovery or rapid results, such as the surgeon often achieves. Ours is by comparison a slow and tedious task, but if slow it is also needful. We know that after the most skilful hospital treatment for injury or illness in the field there is in many cases a prolonged period of convalescence, marked by chronic illness or disability. It is at this stage on the road to recovery that these remedial agencies, waters and baths in their various forms, and other kinds of physical treatment, will, under skilled and patient medical direction, give the best possible results. Indeed, our proposition is that without the scientific use of these agencies in the after-treatment of military cases the best results will not be obtained.

It is not surprising that upon the Continent, which has been so often ravaged by wars, this department of practice should have been studied and followed far more than in our own favoured country. And this is true not of recent times only, but from ancient days. It is interesting to notice that the greatest military Empire in history, that of Rome, fully appreciated the value and indeed the necessity of health resorts for its home and colonial populations. We have ample evidence of the fact that not only senators and officials, but the legionaries exhausted by campaigning, had recourse to the natural hot baths for periodical treatment and rest. Wherever thermal springs were found bath establishments were maintained by the government with great care throughout the Empire—in Italy, Northern Africa, Egypt, Gaul, Germania, Syria, and Britain. At the sites of many of these baths inscriptions are still found testifying to their medical use by the military. Indeed, for six hundred years the Roman *thermæ, munera divum*, afforded one of the chief means of medical aid to all classes, both

for the prevention and the cure of disease [5]. Many of the Roman baths have been irretrievably lost; many were subsequently rediscovered and restored by the Mahommedans; many remain and have been in continuous use for two thousand years.

In some Continental countries, as in Italy, the employment of bath treatments for the military has been traditional almost from the Roman period. At the present time there is in many of them an organised system under government direction. The machinery, according to my information, is somewhat different in the different countries.

FRANCE.

In France (1) the large military hospitals and (2) the *hôpitaux militarisés* (that is, civil hospitals used for the reception of military patients) include, in each case, special establishments for the reception of military patients at certain selected watering-places and health resorts. These are known as *hôpitaux d'eaux minérales* and *établissements civils d'eaux minérales* respectively. This branch of the military hospital service is regarded as an essential part of the organisation for the after-treatment of soldiers in France. Out of the thirty-three permanent French military hospitals, three are situated at health resorts—viz., that of Vichy with 212 beds, that of Barèges with 225 beds, and that of Amélie-les-Bains with 418 beds. Among the 216 hospitals described as *mixtes* or *militarisés* are included bath hospitals at the well-known spas, Plombières, Bourbon-l'Archambault, and Bourbonne-les-Bains, as well as others at climatic resorts such as Nice, La Rochelle, Dunquerque, and Dieppe. In Algeria and Tunisia there are the military establishments of Hammam R'hira, with 50 beds, and Hammam Lif. It will be noted that some of these hospitals have been set up at the seaside as summer resorts, and that others, like those at Nice and Marseilles, have a winter season but are available throughout the year.

A few particulars of the French *hôpitaux thermales militarisés* may be of interest.

Barèges is a mountain spa at an elevation of 4,000 ft., in the Pyrenees. The waters are thermal and sulphided, containing a glairy organic substance—"barégine"—and have enjoyed for three hundred years a reputation for old gunshot and other wounds and painful cicatrices. The thermal baths, like the semi-alpine climate, are stimulating and "excitant," and are taken in vast piscines or bathing-pools, in flowing water at 99° F.

Eaux Bonnes is another of the group of sulphur spas in the Pyrenees. The old name, *Eaux des Arquebusades*, was given to it after the Béarnese soldiers wounded in the battle of Pavia (1525), who resorted thither to be cured [6].

Bourbonne-les-Bains, in the Vosges, is a hot spring, feebly muriated and calcareous. Dr. Martin tells me that it has been a resort for wounded soldiers for centuries, and the baths are considered good both for rheumatism and for wounds. The hôpital militarisé at Bourbonne has more than 300 beds, and is fitted with a modern equipment for the baths, as well as for massage, hydrotherapy and mechanotherapy.

Hammam R'hira, in Algeria, is an old Roman station, with hot calcareous waters, closely resembling in constitution and temperature a sister Roman station, the English Bath.

I have been fortunate enough to obtain some particulars of the Algerian military bath hospitals, which will be of interest to the Section. Upon the conquest of Algeria by the French in the fourth decade of last century, they found here and there some dilapidated but still massive bathing-pools or *piscinæ* of the Roman age. It occurred to the French military doctors, familiar with the historical practice in France, to use the thermal waters of Algeria for treating the sequelæ of wounds, and for the anæmia and debility in the soldiers, which resulted from climate, or from fever and the fatigue of war. The engineers were accordingly directed to restore the Roman baths. The *piscinæ* were again excavated, made good and fenced in, and at several of the ancient hot springs a kind of camp was organised where the officials and the sick lodged together in tents. The results following these simple means were so good that a few years later the military authorities decided to erect regular establishments, of which the first in date was that of *Hammam Meskoutin*, founded by the Médecin-inspecteur Bégin in 1843. Complete statistics of the cases treated at Hammam Meskoutin, including diagnosis and results, were kept from the beginning, and case-records of about 2,000 cases have been preserved [2].

It is probable that these figures may be accepted as fairly representing the treatment of medical and surgical military cases at thermal baths. Rheumatism accounts for nearly half the total, or 904 cases, including both the civil and military, rheumatic affections being common in Algeria. Of these, 789 were cured or relieved by the baths. The next group is exclusively military, 509 cases resulting from traumatic lesion. These comprise unhealthy or adherent cicatrix, nerve pains,

muscular atrophy, bony deformation, articular and peri-articular effusions—all following gunshot wounds—also fractures, dislocations, sprains, and other injuries. Of 283 cases resulting from gunshot wounds submitted to the baths, 225 were cured or relieved; of fractures, 90 out of 101; of dislocations, 10 out of 13; of sprains, 19 out of 23. At *Hammam R'hira* the military bath hospital is furnished with three piscines of moving water, also with bathrooms and douches, and has accommodation for fifty officers and men.

"The action of thermal waters," says Hanriot, "especially if sulphided or chlorided, is very powerful in traumatic lesions, and the natives of Algeria are well acquainted with the fact" [2]. It is an old opinion that some waters have a remarkable power in cicatricial cases, and sulphur waters have enjoyed this reputation for centuries. It is believed that compresses of sulphur water are as efficacious as baths. I may here remind you that in France cold water dressings were strongly advocated in surgery by the great Ambroise Paré as long ago as 1553; and that they were much employed by the army surgeons in the Napoleonic Wars. No doubt this early aseptic practice was a great improvement upon the less cleanly methods then in vogue.

ITALY.

Italy is the chief inheritor of the Roman tradition, and for hundreds of years Italian physicians have been foremost in the advocacy of the rational employment of waters and climates. I need only refer to Savonarola, grandfather of the ill-fated prophet; to Baccius, of Venice, in the sixteenth century; to Giannini, of Milan, in the beginning of the nineteenth century; to Semmola, and Vinaj, and Maggiora, in our day. Professor Casciani, Lecturer on Medical Hydrology in the University of Rome, tells me that there are at present five military bath stations in Italy (*Stabilimenti Balneari Militari*)—namely, *Acqui* (160 beds), *Recoara* (60 beds), *Castellamare-di-Stabia*, on the Bay of Naples, and *Salsomaggiore* (30 beds), besides the hospital at *Ischia*, founded in 1875, with 120 beds. It is recorded that the baths of *Bormio* and *Abano* were used for soldiers in the sixth century.

I should add that in Italy, as in France, most of the great hospitals, civil as well as military, are equipped with appliances for hydrotherapy, that is, for baths at various temperatures, and for douches with and without massage, together with the ubiquitous electric light bath, so that in general physiotherapy is available in those countries for hospital patients,

including military cases, without recourse to the special treatment of the health resort. Consequently, many military patients in those countries obtain bath treatments during their stay in hospital.

A short reference to the procedure by which military cases are selected for treatment at the Italian health resorts may be not without interest. These establishments are open in the summer months, and the cure is divided into twenty-day periods, or *mute*. Lists of the cases recommended for treatment are made out in April and "forwarded to the administrative medical officer, of the (territorial) division, who prepares a consolidated return, with remarks as to whether the case is suitable or not for undergoing a *muta* in the bathing establishment concerned. This goes to the War Office, and there a general roster of *mute* is prepared and issued to the army corps commanders for necessary action" [*vide infra*, 3]. As regards the cost of treatment, there is a scale of payments, ranging from one penny per day for privates to eight shillings for general officers. It should be added that both officers and men may be sent to any of the sea-bathing resorts (*bagni marini*) for similar twenty-day periods of cure, under local divisional arrangements.

AUSTRIA-GERMANY.

In Germany, in addition to the convalescent homes there are institutions (*Militär-Kuranstalten*) for special after-treatment. These are seventeen in number, and are distributed among various health resorts and watering-places in Germany. Among them may be mentioned the *Wilhelm-Heilanstalt*, which was established at *Wiesbaden* for wounded and sick officers and men after the wars of 1864 and 1866. *Wiesbaden*, as we know, has a warm salt water, but the establishment is also fitted for simple hydrotherapeutic and medico-mechanical treatment. At *Landeck* there is a similarly equipped *Militär-Kurhaus*, founded after the Danish campaign in 1864. *Teplitz-Schönau* in Bohemia is *par excellence* the "soldiers' spa" for Austria-Germany. The *Militär-Bade Institut* was founded by Friedrich Wilhelm III for the Prussian Army in 1825, with accommodation for three officers and fifty-six men. There are also separate establishments for the soldiers of Austria and of Saxony. The fame of these weakly mineralised thermal waters for wounds and injuries dates, like that of *Eaux-Bonnes*, from the experience after a single battle, the great Battle of Leipzig in 1813, after which large numbers of the wounded were brought to *Teplitz* for treatment. I should also mention the military bath hospital at *Nauheim*

(43 beds) ; and there are other establishments at *Driburg* (Westphalia), *Norderney*, *Suderode*, *Salzburg*, and elsewhere.

Austria-Hungary has military hospitals (*Militär-Heilanstalten in Kurörten*) at most of the medicinal spas. According to Surgeon-General Macpherson [3], to whose writings I am indebted for these notes, they are twelve in number—namely, two at *Baden*, near Vienna, and one at each of the following places: *Carlsbad*, *Teplitz-Schönau* (already referred to), *Hercules-Fürdo*, *Hof-Gastein*, *Pöstyén*, *Trencsin-Teplitz*, *Budapest*, *Topusco*, *Lipik*, and *Töplitz*. There is also for the Landwehr an establishment at *Esiz*.

RUSSIA.

In Russia, according to the same authority, there are twenty-three army medical stations (*sanitarniya stantsii*) devoted to the treatment of sufferers from chronic disease and for special treatments at health resorts.

UNITED STATES OF AMERICA.

The Surgeon-General at Washington informs me that the United States Government maintains an Army and Navy General Hospital at Hot Springs, Arkansas, where suitable military cases obtain the natural baths and medical care at a nominal cost. These springs were reserved many years since by Act of Congress for the use of the State. This institution is at present the only one of its kind in America. The Commandant is good enough to tell me that it is complete in its hydrotherapeutic appliances, provision being made for all forms of baths, as well as for massage and temperature therapy. I am given to understand that all the larger general hospitals for the Army and Navy in the United States are equipped with a system of hydrotherapy.

JAPAN.

I am told that in Japan wounded soldiers have been sent to the warm salt springs of *Yamanaka* and *Atami*, and for rheumatism to the hot sand baths of *Beppu*.

BRITISH EMPIRE.

The foregoing is a brief account of the Military Bath Hospitals in other countries. That ours is a peace-loving land is perhaps the reason why there is no such establishment in connexion with any of the British

waters, either in the three kingdoms or at the other hot springs of the Empire—whether in India, New Zealand, or elsewhere. Some of the British health resorts are well adapted for this purpose, and many years ago our Honorary President, Sir Hermann Weber, proposed the establishment of such a hospital at Bath. It is true that in most of the countries we have mentioned the thermal and other springs are the property of the State and not only the springs but even the great hospitals are State property. A government, like an individual, may well be more ready to utilise and develop its own resources than to perform the same service for private individuals, and medical opinion and authority are perhaps more readily focused upon therapeutic resources that are supported or recognised by the State. Those conditions for one reason or another have not hitherto existed in our country.

CONDITIONS AMENABLE TO BATH TREATMENT.

We may, in conclusion, briefly refer to some of the varieties of chronic disease, both surgical and medical, that are likely to be met with in soldiers and sailors leaving our military hospitals, and which we believe to be, in the majority of cases, amenable to bath treatment.

For an account of the known reactions of the body in various conditions of disorder and disease to medical baths, reference must be made to works upon hydrology. It must suffice to say here that these reactions have been recognised and defined with some precision, and that many of them follow with almost mathematical accuracy the slightest variation in the temperature, duration, or other characters of the bath. They can be invoked for the whole body or limited to particular parts. They can be varied and alternated at will, and made cumulative and more or less permanent by repetition. Like a ship's helm, these reactions respond to every movement of the steersman's hand. It will be conceded that bath treatments have therefore a potential both for good or evil, and that they require skill, not only in their choice, but in their administration.

Surgical Cases.

With reference to surgical cases, I may quote the summary in the French *Cliniques hydrologiques* [1]. In simple fracture it is held that consolidation of the bone and restoration of the limb may be accelerated by several months by the use of baths. In compound fractures, and

where osteitis and necrosis have occurred, certain baths, particularly some thermal and sulphur waters, seem to have the power, by modifying the nutrition of the part, to alter the suppurating surface and promote absorption of exudation and the discharge of *sequestræ*. In the case of fractures in the proximity of joints—for example, the knee—with stiffness following immobilisation, natural thermal baths at a temperature between 95° and 105° F. bring about decongestion of the tissues, and the re-absorption of peri-articular exudations, and at the same time counteract muscular atrophy and tendinous and articular stiffness. We may note here a familiar observation, that the movement of stiff and painful limbs, otherwise almost impossible, may often be performed with comparative ease in deep, hot baths. Long-continued baths at a somewhat lower temperature are employed not only for their general sedative effect, but to reduce œdema, relieve pain, and restore the local circulation.

It is a golden rule in hydrology that every kind of *thermal bath* is contra-indicated, not only in the presence of cardiac weakness, but also in febrile cases, and in acute or subacute or inflammatory conditions of all kinds; and that these baths, of which the heat is superior to that of the body, are applicable only in chronic disease, where the tissue reactions are defective and sluggish or perverted. It may often be observed in the history of a somewhat protracted case that there comes a moment when acute conditions have subsided and when a stimulating or thermal bath treatment is indicated, although previously inapplicable. Such stimulating measures would be injurious in the early stages of serious sprains, in peri-articular contusion, or in a traumatic arthritis or synovitis, in which it is above all necessary to allow the acute reactions to subside. But two or three months after the accident, should the pain and swelling persist, and muscular atrophy set in, salt or sulphur or thermal baths, according to individual conditions, together with massage, movements, and douches, have their proper and invaluable place.

The degree of heat to be employed in surgical cases needs careful consideration. We know that continued bathing at a moderate or sub-thermal temperature is by itself favourable to asepsis and to the cicatrization of wounds. But higher or thermal temperatures may often be injurious, for example where, to quote again the French *Cliniques*, an unhealed cicatrix leads to an intermuscular sinus. On the other hand, these thermal temperatures, with or without douches and mechanical treatment, are helpful after many injuries—particularly for muscular and tendinous contractions; for nerve lesions, if the nerve

is not divided or has been reunited, and where motor, sensory, and trophic symptoms have resulted from contusion or concussion of nerves in dislocation of a joint or splintering of bone; and lastly for removing articular adhesions, if not of too long standing. The same authorities emphasise the importance, in surgical cases, of choosing not only appropriate local treatment, but a bath station which is well adapted to the general condition of the patient's health.

Rheumatism.

Rheumatic affections bulk largely in the health statistics of armies in times of peace, and the diagnosis "rheumatism" is quite as commonly used for those who are invalided in war. The conditions so designated are of course various, but sometimes appear to be analogous to what has been described as "fatigue fever," met with after extreme and long-continued physical exertion, as in forced marches, especially when the men are not fully trained. An excessive muscular metabolism causes in this condition an accumulation of waste products within the muscles, and a slight general septic intoxication, the symptoms being exhaustion and stiffness and acute pain on movement. If the muscular work is too greatly prolonged, what has been called "organic exhaustion" ensues, perhaps with cerebral disturbance [4].

In slighter cases immediate relief is obtained by stimulating the circulation in the muscles, and so sweeping away the waste products. A good example of this rapid cure of abnormal fatigue is the regulation hot bath after a day's hard deer-stalking in Scotland. We are told that at the Front hot baths are now greatly appreciated by men fatigued from duty. Even when the case is serious and of many weeks' duration, the judicious use of hyperthermal baths sometimes gives surprising relief.

Professor Russell, of Edinburgh, has recently given me a verbal account of some soldiers admitted under his care into the Royal Infirmary from the fighting line in France. Those men had been in the retreat from Mons and in the advance to the Aisne, and had been invalided on account of "rheumatism"; one of the men, who was in the Royal Field Artillery, was so ill before he left the Front that he had to be helped on to his horse, and when admitted to the infirmary seemed to have little power in his legs. All the men were very greatly and promptly relieved by a hot bath; the effect on the artilleryman was marked and immediate. The treatment in all the cases was curative.

The bath was taken as hot as the patient could bear it, and some ammonia was added to the water.

Painful synovitis in a single joint, especially the knee, appears to be common in those who have occupied cramped positions in the trenches. In others there are deposits and thickenings in the connective tissues, more or less generalised, to which the names "fibrositis" and "neuritis" are variously applied. All experienced spa physicians will agree that such cases, when the acute phase has passed away, furnish a large proportion of successes in their practice.

Nervous Disorders.

Finally, with reference to nervous disorders, to the prevalence of which among sufferers from the war there is too much evidence, we have a sure basis for the use of baths. It has been proved that treatments operating upon the surface of the body have a powerful influence not only upon the circulatory but upon the nervous system. Moreover, according to the procedure employed, it is within our power to obtain widely different, and indeed entirely opposite, results. For example, with a proper choice of temperature, one may stimulate and increase, locally or generally, a depressed nervous action. At another range of temperature one can, with equal readiness, mitigate and diminish an excessive action, and that is as regards temperature alone. It is not too much to say that functional disturbance in either direction is amenable to surface treatment.

It follows that in many nervous disorders stimulant or sedative baths, skilfully adjusted to the case in hand, can be suitably employed. Where a stimulant effect is desired, hot air and other thermal baths and douches are to be preferred; but where, as is now too often the case, a more profound exhaustion is shown by irritability, depression and insomnia, we can recommend the sedative type of bath, given at a lower range of temperature and often continued for a considerable time.

In chronic nervous diseases and disorders but little distinction can be drawn between military and civil cases. I will only add that the treatment of these affections forms an important chapter in hydrological medicine.

Taken together, the foregoing indications, medical and surgical, appear to my own mind to point to the conclusion that baths of one kind or another have a useful place in the treatment of military cases. One word as to locality. The treatment must surely be first of

58 Thomson: *Value of Medical Baths for Invalid Soldiers*

all *in the hospital*, if and when such baths are to be found; secondly, *in the town*, where adequate baths and also means of transport are available; and, thirdly, in the last stage, *at the health resort*.

During the coming year many men will leave our hospitals free from acute trouble, but suffering from its results. Not a few will exhibit, in addition to their local injuries, the effects of physical and mental shock. They cannot be returned to their homes, or even to convalescent homes, without further relief. They will need not only patient and prolonged care, but the knowledge that something is being done for them. The appropriate remedies, both physical and psychical, belong especially to the health resorts, and it is the *raison d'être* of these places, when the acute illness has passed, to apply an after-treatment to the problems of incipient and chronic disease.

REFERENCES.

- [1] "Cliniques hydrologiques" ("Bibliothèque de Thérapeutique clinique"), 1909.
- [2] HANRIOT. "Les Eaux minérales de l'Algérie," 1911.
- [3] MACPHERSON. "Handbook on the Medical Services of Foreign Armies."
- [4] MOSSO, A. "Fatigue," 1904.
- [5] SPENDER. "The Bath Thermal Waters," 1882.
- [6] WEBER. "Climatotherapy and Balneotherapy," 1907.

DISCUSSION.

Dr. F. G. THOMSON (Bath): I think the Section will agree that Dr. Fortescue Fox has been particularly happy in the selection of the subject of his paper. There could be no time more opportune than the present for discussion of the value of balneo-therapeutic and allied forms of treatment in the diseases and disabilities incidental to warfare. Whatever may be the outcome of the present War, one thing at least is quite certain—viz., that a large and increasing number of soldiers will be invalided home for rheumatism, fibrositis, and similar conditions, as the result of exposure to wet and cold, together with the severe strain incidental to modern warfare. As these are the particular conditions for which treatment by climate, baths and massage is peculiarly suitable, it would appear to be the duty of the country in general, and of this Society in particular, to see that the best possible use is made of such facilities as the health resorts of this country afford in the treatment of invalided soldiers.

Though no organisation has existed hitherto in this country to provide for the systematic use of baths and similar treatment for military purposes, it would appear, nevertheless, that soldiers of all

ages have visited our different health resorts in considerable numbers to get cured of the various diseases and disabilities incidental to warfare. Thus Bath appears to have been frequented by soldiers for curative purposes so far back as the time of the Roman occupation. Inscriptions still exist, engraved on tablets dedicated to Minerva, which commemorate the cure of Roman legionaries, who came long distances to undergo a course of baths. Among them, three appear to have come from York, three or four from Chester, and at least one from South Wales and Caerleon, respectively. The fact that these men undertook what was then a long, arduous, and probably dangerous journey from such places as York, Chester, and South Wales, indicates considerable and widespread faith on the part of the Roman soldier in such forms of treatment as Bath was then able to afford. Subsequent to the Roman occupation Bath suffered itself in no small degree the horrors and vicissitudes of warfare. The city was sacked, plundered, and burnt on various occasions, and the bathing establishment erected by the Romans was so effectually demolished that what little remained lay buried and forgotten for many hundreds of years.

It is not till the eighteenth century that we find further records of soldiers coming to Bath for treatment of diseases contracted in war. Since then every big campaign appears to have supplied its quota of military patients. The records of certain soldiers during the eighteenth century are interesting at the present time, as it is expressly stated that their diseases were due to lying on the cold, wet ground during the Flemish Wars. Of one soldier it is stated, that after twenty weeks in Guy's Hospital he was discharged as incurable, and invalided out of the Army. On admission to the Mineral Water Hospital (1758) "his joints, vertebræ, and sternum, upon motion or pressure might be heard or felt to crackle, as is usual in scorbutic habits."¹ After three months' treatment he had recovered, with the exception of some crackling of the right shoulder, and was eventually discharged "fit for His Majesty's Service."

In 1780, Nelson, then in his twenty-second year, was invalided to Bath to recover from the effects of an expedition to the West Indies. In February, 1781, he writes to his friend Captain Locker giving his experiences of the bath, and says that he is a "most docile patient." He says: "My health, thank God, is very nearly perfectly restored, and I have the perfect use of my limbs, except my left arm."²

Coming to more recent times, we find that during and immediately

¹ "Three Tracts on Bath Water," R. Charleton, M.D., 1774.

² "Historic Houses of Bath," Meehan, 1883.

after the South African War, 113 soldiers were admitted to the Mineral Water Hospital from Netley and other military hospitals. Of these, all but four were classified as rheumatism, arthritis, and sciatica. Ninety-nine were cured or relieved, eight were not benefited by treatment, and six were for various reasons discharged before their course of treatment was completed. Since the commencement of the present War we have had (up to January 15, 1915) ninety-seven soldiers in the Hospital, of whom just over one half were Belgians, and apart from hospital cases, I understand that over fifty officers (British and Belgian) have been sent to Bath for treatment.

As a result of general observation, supplemented by such special experience as the present War has afforded, I should say that the following classes of patients are those most suitable for treatment at Bath:—

(1) The various forms of arthritis, fibrositis, muscular rheumatism, sciatica, and lumbago.

(2) Wasting due to nerve lesions, where the nerve has either escaped section or been repaired by surgical measures.

(3) Traumatic neurasthenia.

(4) Stiffness, pain, and limitation of movement following on gunshot wounds affecting the joints or muscles.

I have been specially struck with the amount of stiffness and pain which follows simple clean bullet wounds through the muscles of the limbs, and the rapid improvement which follows appropriate treatment by douches, massage, and passive movements.

Speaking generally, the results of treatment of soldiers treated at Bath has been decidedly good. Cases of rheumatic pains due to exposure or to standing in wet trenches have responded more readily than cases of painful joints and muscles in which strain has been the primary factor. Patients suffering from nervous shock due to the near explosion of big shells have also recovered with surprising celerity. The recuperative power of Belgian soldiers appears, on the whole, to have been on a decidedly lower plane than in the case of our own men. This is probably due to their having suffered greater privation, and possibly to some extent to the mental depression incidental to the invasion of their country by the enemy.

I cannot help feeling that the military authorities have failed to take full advantage of such facilities for treatment as Bath affords. At the commencement of the War the City authorities placed the bathing establishment unreservedly at the disposal of the War Office for officers and soldiers invalided home from foreign service. The Committee of

the Mineral Water Hospital also offered the whole of their beds, and were prepared to increase their accommodation to take in 250 patients. Yet up to the present date (January 15) we have had altogether only about 100 cases from the British Army and about 70 or 80 Belgian soldiers. The reason for this is probably to be found in the fact that there is as yet no organisation for selecting and dispatching cases suitable for treatment at this and other health resorts. There must have occurred many hundreds of cases of pain, stiffness, muscular wasting, and limitation of movement, due to disease, injuries, and wounds, which would derive greater benefit from baths, massage, passive movements, and similar forms of treatment, than such treatment as they are likely to get in a surgical hospital.

The medical officers in charge of the big military base hospitals are probably so pre-occupied with the immediate necessities of the patients under their care that the question of after-treatment receives secondary consideration. Many of the cases of unwounded rheumatic soldiers which have come to us have been kept four, six, eight, or even ten weeks in hospital before they are sent to us. It has appeared to me that some real advantage would be gained by the appointment of physicians with some special knowledge of health resorts to pay periodical visits to the military base hospitals, with a view to the selection of cases suitable for removal to such places. The medical officers in charge of the hospitals would probably welcome such an arrangement as tending to clear their beds of less urgent cases, and the patients themselves would derive all the benefit to be obtained from more suitable treatment at the earliest time. The country in general would also be the gainer by any such measure as would promote the early return of the soldier to health and efficiency.

Dr. C. W. BUCKLEY (Buxton) : The earliest evidence of the use of the Buxton mineral waters by military authorities appears to go back as far as the times of the Romans, since there were several Roman roads converging upon Buxton, traces of which still remain, and signs of a Roman camp having existed there. In addition, the remains of Roman baths have been found at various times: one was of timber lined with lead, another which measured 30 ft. long by 15 ft. wide was of brickwork and concrete. These remains were for the most part removed by enthusiastic improvers in the seventeenth and eighteenth centuries. It may reasonably be assumed that these baths were used by the military only, since the inaccessibility of the district at that period renders it very improbable that civilians would penetrate so far.

The earliest written records are of the Elizabethan period, and refer to the visits of Mary, Queen of Scots, between 1570 and 1583. This unfortunate monarch appears to have suffered much from rheumatism, probably of the fibrous variety. Eminent soldiers and statesmen were also visitors about the same time, notably, the Earl of Leicester, Lord Burleigh, and the Duke of Sussex. Beyond this, however, the records do not indicate that soldiers came to Buxton in any numbers at this period. The Devonshire Hospital has during many years past treated numbers of soldiers from Aldershot and other large military centres chiefly for sciatica and the later stages of rheumatic fever with marked success, while officers on furlough from India have formed a definite proportion of the annual visitors for the cure, suffering for the most part from the sequelæ of malaria and other tropical diseases.

Soon after the outbreak of the present war the Board of the Devonshire Hospital offered to the War Office one half of its beds for the treatment of soldiers, 150 altogether, and intimated that more would be provided if required. An independent Red Cross Hospital of 50 beds was also established. The municipal authorities in their turn offered free treatment at the mineral baths to any soldiers or sailors invalided on active service, an offer which was readily accepted by the War Office and the Admiralty, and which is being taken advantage of to an increasing extent. The cases which have been sent to Buxton hitherto may be divided into two classes: (1) Those convalescent from wounds, or at least sufficiently so to permit of them travelling thither without an ambulance train; (2) those suffering from rheumatism, sciatica, irritable or overstrained heart, synovitis, &c.

The first class do not receive bathing treatment, and therefore do not come within the scope of this discussion, with the exception of those cases in which stiff joints have resulted from the effect of the wound, and cases where nerves have been damaged by the passage of a bullet or other missile with consequently a varying degree of paralysis. Such cases benefit greatly from the proper use of the resources of a well-equipped spa. The methods adopted are massage, hot douching, electricity—either galvanism or faradism, or, in suitable cases, ionisation—and passive movement of stiff joints by various methods.

The second group are those in which mineral water and spa treatment are of the greatest service, and there is no doubt that if such cases were promptly sent from the base hospitals in this country to the spas they would make much more rapid recovery and the Army would be deprived of their services for a much shorter time than is now the

case. It is unnecessary to describe in detail the management of such cases as come under the head of rheumatism, fibrositis, sciatica, &c.; they are well understood by all spa practitioners. It does not follow, however, that any spa will do equally well. The indications for saline waters such as Droitwich, sulphur waters such as Harrogate and Llandrindod, and thermal radio-active waters like those of Bath and Buxton, differ widely and deserve careful consideration on the part of those authorities who have to distribute the cases of this second group. The cases of the first group will do equally well at any place possessing the necessary equipment. It would be a task well worthy of the members of this Section to endeavour to formulate clearly the indications for the different spas, and the result would be greatly to the advantage of the spas themselves as well as to patients, military or otherwise.

Fibrositis in its various forms appears to be the condition most frequently met with, resulting from damp and exposure. It yields to treatment promptly and completely as a rule. Recently I have seen a man, invalided out of the Army for severe fibrositis, who took advantage of his freedom to enter the Devonshire Hospital at Buxton forthwith, and there is every reason to expect that he will soon be fit again. Had the effect of spa treatment been tried before he was invalided he might still be serving, and I have no doubt there are many similar cases.

Cardiac cases are met with frequently among soldiers invalided home, the most important type being cases of irritable heart resulting from overstrain as usually seen in young soldiers. These react well as a rule to the Nauheim method of treatment combined with restricted exercises or graduated hill-climbing.

Synovitis from sprains is commonly met with and needs no comment. I have also seen several cases of injury to the foot from the wheel of a waggon or gun carriage passing over it, and flat foot is often the cause of the soldier falling out on the march and ultimately having to be sent home.

One case of injury without wound which came under my care is perhaps worthy of special mention. A bandsman in a Highland regiment who was carrying out his duties as a stretcher-bearer was captured by the enemy and tied up with several other men. His right arm was secured by a cord passed tightly several times round his forearm and that of his next neighbour. He complained of pain from its tightness and his captors forthwith tied it more tightly than before. When he came under my care six weeks later the hand was swollen

and œdematous ; the muscles of the forearm were pulpy and powerless ; he could not move his hand or wrist except in pronation and supination. He made a fair but slow recovery, but had lost his nerve to a great extent, and how far this will be regained is rather doubtful.

This loss of nerve is likely to bring many cases for spa treatment as the war goes on. Up to the present I have seen very few. We shall see more of them later, when having been cured of their wounds in the general hospitals the nervous symptoms come more prominently under notice. For such cases the quiet, well-ordered life of the spas will be of the greatest value, and the bracing climate of Buxton will, I anticipate, attract many. Hospitals are not generally suitable for cases of this kind. The value of hydriatic treatment of various kinds in such cases is very great ; douches, sprays, long-continued warm baths and packs, all have their place and will, I feel confident, restore many a wrecked nervous system to health again. It will not surprise me if the value of military medical baths proves to be the greatest in these cases.

Surgeon-General M. W. RUSSELL, D.D.G., A.M.S. : So far as the treatment by means of hydrotherapy of injuries and disabilities incurred by soldiers is concerned, the readers of the papers have been preaching to the converted, for the military medical authorities have long been aware of the virtues of such treatment, proof of which may be had from the many instances quoted in the papers read. You gentlemen here represent those who are most versed in the knowledge of balneological affairs and are fully aware of the peculiar properties of the many baths in Britain. It probably seems strange to you that so little use is made of them. If we look to the Continent we see there that the various medicinal spas are thoroughly well known and greatly frequented by the people. This is not so much the case in this country, and the only reason I can think of to account for this neglect is that the healing properties of the treatment afforded at our watering places are not sufficiently brought to the notice of the public and of the profession. To educate the former it is necessary that the latter should be well instructed, and perhaps without being disrespectful it may be said that the instruction of our profession in the use of the curative waters in our own island is not very fully developed. The Section is clearly the body best fitted to develop this instruction and to take up this question of education. Once the profession is convinced of the great value of the treatment to be obtained in our watering places these will be no longer neglected by the public. With reference to their use

in connexion with sick and wounded soldiers returned from the war, we are of opinion that the Section of Balneology and Climatology of the Royal Society of Medicine can render very material service, and I would venture to suggest that the Section, whose members are the acknowledged authorities on this subject, should form a Committee to codify and disseminate information with regard to the special treatment to be obtained at these centres. I would suggest that the Committee should draw up a list of baths in the British Isles giving, in each instance, the medicinal qualities and stating the particular diseases and disabilities for which each is suitable. This Committee might also ascertain what facilities exist and would be offered for the treatment of sick and wounded soldiers at each of the places mentioned. If some such authoritative information were placed at the disposal of the War Office it would be a simple matter to distribute it to the various military hospitals throughout the kingdom and to make arrangements for the transfer of suitable cases from these hospitals to the different watering places where special treatment could be afforded. A real service might be done for those soldiers who are likely to profit by this line of treatment for which opportunities now exist, but which opportunities are, unfortunately, not thoroughly known.

Dr. PRESTON KING (Bath): Experience shows the marked benefit that follows the use of the thermal waters by those invalided home from the Front. Most of those who have used, and are using, the Bath waters are suffering from lumbago, sciatica and rheumatism brought on by cold and exposure—cases such as we have been accustomed to treat and relieve in the baths at all times, and their treatment presents nothing special in its features. Besides these we are treating with marked benefit many cases of injuries and stiff joints caused by wounds, fractures and contusions. In addition to all such I have seen many cases where the patients have been suffering from nervous symptoms as a result of the awful strain that they have been exposed to. The sedative influence of the waters combined with rest and quiet does much to restore sleep and relieve these cases.

Dr. W. P. KENNEDY (Bath): I would like to record my impressions of rest and warmth immediately following thermal baths, in military cases, especially when invalided home from the Front. In men of strong physique, who can well tolerate frequent warm baths, it appears to me to have an enhanced value. Some few of our heroes, even

though they may not admit it, have had a long period of strain upon the nervous organism, and reserve power may be much lessened without the fact being patent either to themselves or to the observer. Yet close examination may reveal some symptoms pointing to such a condition of nervous alteration. Such patients take four or more thermal baths in the week and are ordered to remain one and a half or two hours in bed immediately after the pack. Though at first the inconvenience and trouble of lying up so often is irksome, the patients soon exhibit complete acquiescence, and even court and enjoy the exhilarating after-effects. One often finds, even among those who profess they never can sleep in the day, that after the first four or five baths the patient dozes during this rest, and also that his sleep at night becomes more profound, and that he sleeps longer at a time, and often confesses it to be more invigorating than hitherto. This plan of treatment seems especially useful in gouty subjects—and in those exhibiting the gouty diathesis, in whom cold extremities are often common. It is often a means of ameliorating this sense of chilliness, and the condition is improved for months subsequent to the course of baths. It appears to me that in these subjects there is a tendency to a retarded flow through the small arterioles, and stagnation in the capillaries and lymph spaces—consequently we get a lessened metabolism. The baths, aided by subsequent warmth, appear to relieve this condition, metabolism is stimulated, and the whole circulatory system tends to a general restoration of a higher reserve potentiality—thus producing a greater buoyancy and sense of well-being. The greater the amount of rest and sleep and the more profound these are, the greater the storage of reserve power, nervous, circulatory and assimilative. I have been struck by the fact that some men of high physical power, capable of great endurance and power of work, think they have weak hearts because of their cold feet and hands. Even where the rhythm, rate and apex beat of the heart are satisfactory, and the condition of the pulse normal—or only depart from the normal in a quite microscopic degree—the patients still suffer in this way. I look upon them as having some stagnation of the circulatory system in its peripheral parts. It *may* be labelled a weak circulation, but my experience is that oftentimes these men have a particularly *strong* heart, and that when you relieve the peripheral circulation you restore a good circulation, and this insures a complete restoration from coldness in the extremities. This experience makes me wish to impress the importance of rest and warmth as valuable auxiliaries following thermal bath treatment in such cases.

Balneological and Climatological Section.

March 4, 1915.

Dr. SEPTIMUS SUNDERLAND, President of the Section, in the Chair.

The Teutonic Health Resorts and their Substitutes.

By LEONARD WILLIAMS, M.D.

I DESIRE to make it clear at the outset that this paper is no mere contribution to the endeavour which is being made to capture German trade. Such would no doubt be a legitimate and even a laudable purpose: but the work would be one of supererogation, for it is quite certain that, rightly or wrongly, invalids from these islands will of their own accord refrain from visiting German watering places for many years to come, and it behoves us to be prepared to offer such people substitutes in France and Great Britain for the places to which they might otherwise be inclined to go.

And first of all let us examine into the causes which have secured for the enemy resorts that popularity to which they have undoubtedly attained. It cannot be pretended that these enemy resorts are possessed of climates so admirable or of waters so exceptional that they cannot be matched and even surpassed by stations within the zone of our sympathetic political interest. Neither can it be urged that what may be termed the handling of these climates and waters by the local medical men is so remarkably skilful as to cause the French and British spa physicians to bow their heads in becoming humility. Nor can it be truthfully suggested that the standard of comfort, the means of legitimate recreation, and the public hygiene, are more carefully studied in Germany and Austria than they are in France and at home. How, then, can we account for the vogue which these stations have enjoyed amongst the well-to-do British during the last forty years? There are two reasons. The first, and by no means the least important, is

historical. It is that they were first in the field. Ever since the day, in 1826, when Priessnitz, an ignorant Silesian peasant, organised his establishment at Graefenberg for the cure of all diseased conditions by cold water, and achieved for himself a perfectly phenomenal success, the profession in Austria was obliged to study his methods. It was due to Professor Winternitz and his pupils that these methods eventually found a scientific justification, and that consequently from about 1880 onwards the cult of baths and waters so spread over Austria and Germany that wherever a natural mineral spring was discovered, there would surely arise a well-equipped health resort with scientists to study its properties and disinterested people to advertise them. It was the success of the Austrian and German stations thus established which provoked the emulation of similar places in France and England. But the lead gained by the former has never been lost.

The second reason is essential in the Teutonic character. The Teutonic patient is docile, submissive, obedient. The militarism under which he has been born and in which he has been carefully nurtured teaches him these virtues. He no more dreams of disobeying his doctor than he dreams of flouting the drill-sergeant. Orders are given by the one in the same spirit and in much the same tones as those shouted by the other. In Germany, if you wish to be taken seriously you must raise your voice and roll your eyes. It is the cultured method, and the physician adopts it. He writes down in the minutest detail how the patient is to spend every quarter of an hour of his day, even to the number of respirations allowed per minute, and brandishes a minatory forefinger to punctuate the importance of each successive item. He signs the whole as though it were a military order. Is it any wonder that it is observed as such?

And, as the doctor, so is the health resort. Everything is minute, particular, exact, orderly, studied. All the patients do exactly the same thing at exactly the same hour in exactly the same way. The whole place is a model of military uniformity, a reflection in the mountains of the parade ground at Potsdam. As the *Times* expressed it in a wider sense, invalids are here blue-booked, tabulated, and inspected into health and happiness, whether they like it or not.

Now the superficial observer might easily conclude that such things would serve only to repel the French or British visitor. But they do not. They seem, on the contrary, to attract him. All patients, whether male or female, are feminine in the sense that they like to feel that they are being disciplined. Time does not hang heavily on the hands

of him who is doing what everyone else is doing. It is only when he is left to himself that he is bored.

It has scarcely ever fallen to my lot to suggest a British health resort to a patient without being met with the objection, "Oh, but I shall be bored to tears." To a similar suggestion concerning a French station the objection usually takes the form of a difficulty concerning the language. Very few French physicians speak English, and an English physician at a French health resort is a rare bird; and, on account of the almost insuperable difficulties placed in the way of English doctors qualifying to practise in France, he is rapidly becoming extinct. Parenthetically I may be allowed to suggest that the present is a suitable time for rectifying this anomaly. Against the Austrian or German health resort boredom is never urged, and, Germans being excellent linguists, the language difficulty never arises. The objection which is usually raised, if indeed an objection be raised at all, is that the cure is too strenuous, that it is in no sense a holiday, that the patient will come back more fatigued than when he set out, that an after-cure will probably be necessary. Such objections are easily overcome by a little diplomacy, whereas those which deal with boredom and the difficulties of language are generally insuperable.

Now this attitude of seriousness in what may be termed the ritual of their cure is one of the most powerful assets of the Teutonic health resorts. They do not, as we and the French are too apt to do, depend entirely upon their climates, their baths or their waters, but they study diet, exercise, recreation of mind, and the physiological effects of discipline. And not only do they study these things, but they prescribe and insist upon them, and even see that they are carried out. All this refers not only to the medical side of the station, but also to the social and commercial. The whole atmosphere is instinct with the "cure" and its details. If you are not a cure-guest, you are nobody. You might as well be a non-combatant in a besieged city. But if you are a cure-guest every attention is paid to you, every consideration is shown to you.

Contrast this with the atmosphere of a similar place in France or Britain. In France the centre of interest is the casino; in Britain, the golf links. In either country the cure is regarded as a harmless and rather unnecessary nuisance. You drink your waters apologetically, and submit yourself to the doucheur with indulgent incredulity. You so arrange the whole business that it shall interfere as little as possible with your general freedom, and you get it over as quickly as you can.

If there should happen to be any dietetic or alcoholic restrictions, you argue with your doctor and, with the eager co-operation of your wife and the *maitre d'hôtel*, you disobey him on any and every pretext. In this matter the French resorts, while they have still much to learn from the German, are a great improvement on the British. The Englishman, even though he be an invalid, has a blind desire to go out and kill something himself, or see someone else kill something; when not so engaged he considers he is wasting his time. The Frenchman is not like that. *Il sait flâner*. He knows how to potter. He takes more interest in literature, the arts and the drama than he does in pigeon shooting, cricket, golf, and football, and will therefore content himself more readily than the Englishman in quiet and contemplative enterprise. A Frenchman who is told to walk is ready to do so at two miles an hour, chatting with a friend, and is quite willing to have the exact distance prescribed for him. He takes the air. The Englishman does not consider that he has had a walk unless he returns moist, footsore, and fatigued. He does not take the air; he takes exercise—and a whisky and soda.

It is said that the Frenchman boldly and blandly advertises his vices, whereas the Englishman hypocritically conceals his. If a malady be a vice, then the saying is certainly true. Even though you be a layman, Jacques Bonhomme will talk to you freely and volubly about his symptoms; whereas John Bull asserts through his clenched teeth that he has never had any. In France a chronic malady is a subject for commiseration; in England it is a matter for contempt. Acute disease may evoke sympathy—appendicitis has quite a royal flavour—but chronic disease, seldom or never. Even gout has ceased to be aristocratic. When it abandoned the acute great toe to wander destructive amongst the tissues it became not only protean but proletarian. For this reason it is impossible to get an Englishman, in England, to be seen at a table set apart for those undergoing a dietetic régime. He is not having any. He would rather starve at the ordinary tables, refusing each course with grim determination, than allow himself thus to be branded as an invalid. In France, dietetic tables and even dietetic institutes are eagerly and gratefully patronised. John Bull will fearlessly face temptation, and resist it—when he must. Jacques Bonhomme has the courage smilingly to recognise the wisdom of retreat.

I am not infrequently reproached for advising French resorts in preference to British, and I defend myself on the plea that better results

are obtained from abroad than are obtainable at home. This is no reflection upon the English spa physician; it is merely a tribute to the advantages of change; and so long as the characteristics, the habits and customs of the Latin race continue to differ fundamentally from those of the Anglo-Saxon, so long will these advantages be operative. For it is not only that the change itself is more complete, that the distance from domestic and business worries is greater, that your fellow-guests are more gracious and more amusing; but it is that the change in therapeutic methods is so decided that you are impelled to acquiesce in whatever is suggested for your benefit. A sense of unfamiliarity is conducive to discipline. The fear of the unknown is the promoter of wisdom. And not only so, for it cannot be denied that there is a something lacking in the atmosphere of even the best of our British health stations. What that something is I do not pretend to say. It may be that the word "enterprise" would express it. Certain it is that enterprise is by no means a conspicuous feature of the home stations in general. And yet it is not altogether a question of enterprise, for even in those British stations where intelligent enterprise has not been wanting (I know one only) the right note does not yet appear to have been reached. My friend Dr. Neville Wood has made a most patriotic and praiseworthy endeavour to attract foreigners to English resorts, but in spite of his industry, his tact, and his sincerity, I should be much surprised to learn that his persuasive piping had resulted in the arrival of more than a stray goose or two. When war broke out the birds of Paradise and the owls of wisdom had failed to find salvation: they still wandered in culture among the tents of the ungodly. The bald and brutal fact is that, with the exception of Bath, which occupies, not without distinction, the unique position of being the only winter thermal station in Northern Europe, the British resorts have nothing to offer which France does not supply, in quantity much greater, and in quality much superior.

In support of this depressing proposition and by way of example, I must be allowed to add one word. The only chalybeate spa of any consequence in England, Tunbridge Wells, is, from the point of view of its waters, altogether derelict. In anæmia and allied conditions it once enjoyed a great reputation, but this glory has departed, and it is now visited solely on account of its not inconsiderable climatic virtues. Of the sulphated mineral water stations which are so much frequented on the Continent we have two examples, Cheltenham and Leamington. The former is a potentiality in a state of animated suspense; the latter,

an actuality in a state of suspended animation. It would be easy to multiply such examples, but patriotism bids me forbear.

I now pass from the general to the particular, from this brief general survey to the detailed consideration of those Teutonic health resorts which have acquired a reputation in this country, and such substitutes as may be found for them in France and Britain. But I must premise what I have to say by reminding you that we must estimate the value of a station not so much by the chemical composition of its waters as by the clinical effects which experience has shown these waters to produce. It is a trite saying that, whatever the composition of their waters, all spas cater for gout and rheumatism, and a common remark that stations whose waters are chemically almost identical have successfully specialised in the treatment of very dissimilar complaints. I shall therefore be guided by considerations clinical rather than chemical.

The best known health resort in the civilised world is certainly Karlsbad. For our present purpose we may regard Karlsbad and its near neighbour Marienbad as one station. They are about equally famous, and they both cater for the same type of patient. In each case the natural mineral water is a purgative water, the chief ingredients being the sulphate and bicarbonate of sodium. At Karlsbad the water is hot; at Marienbad it is cold. The colder water is considered the more active.

To visit either of these famous stations in ordinary times was to be struck by the enormous number of extraordinarily fat people who frequent them. These people were not only fat but they were overfed; not only obese, but plethoric. Eliphaz the Temanite surely had a prophetic vision of the frequenters of the Schloss-brunnen or the Kreuz-brunnen when he spake to Job (chapter xv, 27) of him "that covereth his face with fatness and maketh collops of fat on his flanks." It might be said that this type of person is peculiar to the Teutonic peoples, and is the result of their refined and cultured dietetic habits, but such is not the case. There are overfed men and women in plenty both in this country and in France, and a great many of them have in the past found their way to Karlsbad and Marienbad. They did not as a rule go there for obesity. They went there to rest their fatigued and rebellious livers, to clear their loaded, distended and V-shaped colons, to relieve their kidneys of the burden of alimentary glycosuria, and to test the reputed power of the waters in dissolving hepatic concretions. The obesity was a minor matter, but owing to the dietetic and other

restrictions they could generally count on the disappearance of a collop or two.

Now the question which we have to decide is whether the suppression of these stations from the map of civilised Europe is therapeutically irremediable. The answer is an emphatic negative. In comparison with their rivals these places had the advantage of priority in the field, of powerful advocacy, and the distinction of royal and imperial patronage. But their results have never been any better than those to be obtained at two French stations, one which is justly famous; the other, most unjustly, comparatively obscure. The famous spa is Vichy. The waters of Vichy consist mainly of bicarbonate of soda. They contain no purgative salt. But the treatment of gastro-intestinal disorders at this station is just as successful as their treatment at Karlsbad and Marienbad, with this great advantage, that it is very much less debilitating, and therefore better suited to the numerous cases of gastro-hepatic complaints in which the heart is sympathetically affected. Nor do they neglect the collops at the French station. At the Austrian spas, bathing, massage, Zander exercises, and the like are very minor considerations. At Vichy, very special attention is paid to them, in a bathing establishment which for size, completeness and good order is second to none in the world. It is safe to say that there is not a case which has derived benefit from Karlsbad or Marienbad that would not derive equal and even greater benefit from a course of treatment at Vichy. Moreover, Vichy is one of the very few French spas where the language difficulty does not arise. There is at least one English physician, and several of the French physicians speak excellent English. Two of them have British qualifications.

Vichy is a substitute for another Teutonic station — namely, Neuenahr — in Rhenish Prussia, the only station in Germany with waters similar in composition to those of Vichy, than which they are much weaker. Neuenahr is not a very agreeable station, nor a particularly efficacious one. Clever advertising had, however, succeeded in obtaining for it some reputation in this country.

The other French substitute for Karlsbad and Marienbad is Brides-les-Bains. Though well known to and much appreciated by French physicians, in Great Britain its merits have been much overshadowed by the popularity of its Austrian rivals. It is situated in the Savoy Alps, close to the Italian frontier, and not very far from Aix-les-Bains. Its waters bear considerable resemblance to those of Marienbad inasmuch as they contain purgative salts and are very efficacious in all

those gastro-hepatic conditions associated with tardy metabolism which gain benefit from the Marienbad waters. The fat man is fairly conspicuous at Brides. I knew a lady who went there regularly every summer because, as she said, the other guests made her feel so slim and active. But the station does not depend only upon its waters, as taken internally. At the sister station of Salin-Mouliers, about a mile away down the valley, there is an admirable bathing establishment, where fairly strong effervescent brine baths may be obtained, and in the valley itself there are several walks, with the distances and gradients marked at intervals, where the patients can undergo the altogether admirable system of graduated walks, known as the "cure de terrain."¹ An additional advantage of Brides is its proximity to a high altitude station called Pralognon (4,600 ft.), where an after-cure may be taken in beautiful surroundings among the snows. Brides has been called "the French Karlsbad." "The French Marienbad" would be more correct. Its natural advantages are much greater than those of either of these places, and it is quite as accessible. If this station were to take full advantage of the opportunity offered by the existing state of affairs, it would in all probability become one of the most popular resorts in Europe.

Vichy and Brides-les-Bains afford very efficient substitutes not only for the two renowned Austrian spas but also for two almost equally famous spas which are essentially German. I refer to Homburg and Kissingen. It is very difficult to understand how Homburg and Kissingen acquired their reputations, but there is no doubt that they "arrived." Neither is there any doubt that latterly these reputations rested upon considerations which were social rather than medical. Both these places were admirably "run," but both were pleasure grounds rather than health stations. They catered for much the same type of invalid, the gouty abdominal, as Karlsbad and Marienbad. Of the two substitutes which I have mentioned, the pleasure-seeker will prefer Vichy; the plethoric, Brides.

The gout or rheumatism which takes the form of arthritic troubles is treated at a great number of Teutonic spas. Chief among them are Wiesbaden, Baden-Baden, and Kreuznach. Kreuznach, on account of the bromo-iodine contents of its waters, made rather a special point of treating gynecological disorders, but it was in the main a gouty spa.

¹ The only place in this country where the "cure de terrain" appears to be available is Eastbourne, where they seem to have taken some trouble to perfect the system. It is being installed at Sidmouth.

These three were all exceedingly agreeable stations, a "cure" at any one of which might be trusted to produce good results. It is nevertheless difficult to understand how anyone could have preferred any of them to Aix-les-Bains, the station in France whose fame is known all over the civilised world. The treatment at Aix-les-Bains is by no means confined to the baths and the douche massage which bears its name. In the "source des Deux Reines" they possess a drinking water which rivals those which have made Contrexéville, Vittel and Evian famous, a water which is very active in ridding the system, via the kidneys, of the effete matters which have contributed to produce the arthritis, the myositis and fibrositis, for the relief of which patients seek this pleasant alpine station. For those who like gaiety, social amenities and distraction, in charming surroundings, there is no more acceptable prescription than a cure at Aix. As might be expected from its popularity with British and American invalids, Aix-les-Bains is another of the French spas where the language difficulty does not arise. At least two distinguished British physicians practise there, and many of the French physicians speak excellent English.

Aix-les-Bains has three rivals in this country, and if we could compare Bath, which is a winter station, with Aix, which is open only in the summer months, it would be necessary to say four. The other three are Harrogate, Buxton, and Llandrindod. All three are very good substitutes for the Homburg-Kissingen group, and also for the Wiesbaden, Kreuznach, Baden-Baden class of German station. But I hasten to add that there are very decided differences between them, not only in their climates and waters, but also in the types of invalid to whom each makes a special appeal. These I will try and indicate in passing.

It is not necessary for me to enter into a description of the famous Yorkshire spa. As a health resort it is well known to most English physicians, and the laity go there in large numbers not only for its baths and waters, but on account of its refreshing climate, its agreeable surroundings, and its engaging social atmosphere. Harrogate has shown more enterprise than any other English spa. Its waters have been very carefully and impartially studied, both chemically and clinically, by several very competent physicians, and the natural mineral resources have been generously supplemented by all the adjuncts to spa treatment, such as electricity, massage, and the like, which modern methods demand. It is difficult to say whether the waters as taken by the mouth or as externally applied are the more efficacious, but certain it is that the results of a course of treatment in

the gouty and submetabolised type of invalid are eminently satisfactory. In estimating the value of a health resort it is impossible to pay too much attention to the skill of the physician who is to be entrusted with the treatment of the patient. In this matter Harrogate has always been exceptionally fortunate, for there is no British spa, there is hardly, indeed, a single Continental station, where so much earnest, interesting, and illuminating work has issued from the pens of the practising physicians. Harrogate caters for every type of deficient metabolism. The water of the old well, most unpalatable as it is, must be credited with very special virtues as a stimulant of the liver. There are many other springs, in all about eighty, which vary considerably in their mineral contents, and thus afford a very wide choice of therapeutic resource. The bathing establishment is very completely equipped. There is scarcely any form of treatment—balneary, electrical, or mechanical—which cannot be obtained there, though there are doubtless certain of these forms which would be better applied elsewhere. In addition to the treatment of gouty and rheumatic states, a special feature is made at Harrogate of the treatment of cutaneous diseases and of circulatory troubles, especially such as have a gouty origin. No better substitute for a Teutonic gouty spa could anywhere be found than this pleasant station on the Yorkshire moors.

Nevertheless, Harrogate has a very serious competitor in Buxton. Buxton, in the Derbyshire hills, has an elevation of 1,000 ft. above sea-level, more than double that of Harrogate, which has only 400 ft. In this matter Llandrindod is between the two, with an altitude of 700 ft. The climate of Buxton is therefore conspicuously bracing, and being well sheltered on the north and east, the unduly keen winds are moderated. Buxton's reputation as a spa was originally based upon its good effects in rheumatism, gout, and allied conditions. During the last decade, however, a more careful study of its waters by the local physicians has enabled it to widen its claims and multiply its resources. It was found, for example, that analytically its waters bear a close resemblance to those of some French stations in the Vosges Mountains, notably Plombières and Contrexéville, and they have in consequence been used for the same purposes in a manner similar to that which obtains at these resorts. The installation for the Plombières treatment is very complete, and a large measure of deserved success has attended this comparative innovation. The analogy of the waters to those of Contrexéville has been utilised for the purpose of laying stress upon their diuretic action, a quality which in former days was regarded rather

as a side issue. So far from being still so regarded, this diuretic action is accorded a very high place in the success which the whole treatment may justly claim in the relief of gouty and rheumatic disorders, and Buxton may be said to be the British spa *par excellence* for a patient who suffers from defective elimination, as opposed to deficient metabolism. The bathing installation at Buxton is very complete, as complete, indeed, as any elsewhere to be found. For so-called rheumatic troubles, fibrositis, myalgia, rheumatoid arthritis, for the patient whose kidneys require flushing and whose blood requires cleansing, Buxton may be appealed to with every confidence. And it is pleasant to record that here, as at Harrogate, the practising physicians have taken their mission seriously and have added very materially to the stock of general knowledge on matters balneological.

Of Llandrindod Wells it may very justly be remarked that it is very much to its credit that it can claim to be placed in the same category with Harrogate and Buxton; for as compared with these it is a mushroom growth. Its climate certainly seems to enjoy some special features which render it particularly agreeable to those in health, and peculiarly suitable to the debilitated and neurasthenic type of invalid. The waters belong to the muriated or common salt group, which brings them into the same class with Wiesbaden, Kreuznach and Baden-Baden, while the presence of an appreciable quantity of sodium sulphate makes them comparable with Marienbad and Brides. At Llandrindod, therefore, we meet the fat man once more. He is perhaps a collop or so less conspicuous than his brother at Brides, or his cousin at Karlsbad, but he is there. And he is there, instead of at these others, partly because the treatment is milder, the waters are less mineralised, and it is not so far to go. The presence of common salt in mineral waters is said to render them more easily digested by the weak and debilitated, and this may explain the advantages which the atonic, rheumatic and gouty seem to find by a course of treatment at the Welsh spa. From the artistic standpoint the bathing establishments leave much to be desired, but the inside equipment and installations are excellent. All the kinds of baths which modern methods demand are well and carefully applied there. Llandrindod may look forward with confidence to attracting to itself many of those who formerly have visited the Teutonic spas which I have mentioned as clinically comparable to it, and such patients will have no reason whatever to complain of the efficacy of the treatment to which they will there be subjected.

When we pass from the stations which deal with what are called

the vices of general metabolism, such as gout and rheumatism, to the diseases of particular organs or systems in which certain spas have specialised, we find looming large in the survey the magic name of Nauheim. So large, indeed, does it loom that it seems to occupy not only the horizon, but the middle distance and the foreground, for it had somehow managed to make itself synonymous with all the diseases and disorders of the circulatory system. If it were possible to erect a monument to German commercial methods in matters medical, that monument would surely take the form of a pillar of salt drawn from the Grosse Sool Sprudel at Nauheim. To find a parallel to this instance of colossally successful bluff you must go back to Priessnitz himself. On a foundation of a little common salt and a large quantity of gas, verbal as well as physical, there was erected a superstructure imposing in its parts and profitable to the builder. By this I must not be understood to imply that Nauheim baths, whether natural or artificial, are entirely useless. They have, on the contrary, very definite merits in certain conditions of enfeeblement, especially of the right ventricular wall. And with the meteoric rise of Nauheim, it is extraordinary how prevalent such enfeeblement quickly and unexpectedly became. In a moment, in the twinkling of an eye, there occurred an epidemic of cardiac dilatation which, sparing the cottage of the poor and the houses of the bourgeois, penetrated with subtle selective insight into the palaces of the rich and influential. The families and even the valued dependants of the millionaire displayed a curious and inexplicable susceptibility to the complaint. Success brought boldness, and the restricted claim for the improvement of ventricular dilatation was now enlarged to a bid for empire over the whole cardio-vascular domain. Patients with organic valvular disease, with renal disease and secondary cardiac manifestations, with angina pectoris, with high blood-pressure, and even with aneurysm of the aorta, crowded to Nauheim, and were persuaded into the belief that they could prolong their lives by daily dragging their dropsical limbs up the steps of the Kurhaus. And yet no one ever died at Nauheim. The climate is peculiar, it does not suit the moribund. They are removed to a neighbouring parish.

And now that this house of cards is fallen, this pillar of salt dissolved, we rub our eyes and ask ourselves if there was really aught of value beneath the tinsel of the exterior. The answer must be in the affirmative. Tepid and cold effervescing saline baths have their place in the armamentarium of the cardiac therapist. It is not a very large place, perhaps, but such as it is we owe it to Nauheim. Such baths are

to be found at various places in France; they can be, and are, prepared artificially almost anywhere, and cases which were really suitable to treatment at Nauheim can be equally well treated in a great many places, especially at such as have at their disposal a natural saline water, such as sea-water. There are some seaside stations in this country where a special feature is made of Nauheim baths. Amongst the foremost of these is Sidmouth, in Devonshire, where the salt water baths, carbonated or plain, are put to a variety of useful therapeutic purposes. The climate of Sidmouth is very suitable to the debilitated and convalescent, and the baths afford a very helpful agent when, in such people, the heart has become enfeebled and dilatation is present. The Nauheim baths are here prepared by diluting the sea-water and adding the carbonic acid.

There are two stations in France which have made a special feature of the treatment of circulatory disorders. One is Bourbon Lancy, the other Royat. Bourbon Lancy had acquired a reputation as a cardiac spa many years before the days when the miracles of Nauheim dazzled a credulous world. In the light of subsequent events it is now obvious that its claims were too modest. For it has never pretended to cure organic disease, nor has it even undertaken either to discover or remedy cardiac dilatation, as measured by the fractions of a centimetre dramatically blue pencilled on the patient's chest. Its claims, though modest, have been scientific, and, what is of more importance, they have generally been justified by the event. Stress has never been laid upon the presence in the waters of a certain amount of carbonic acid, and neither claims nor results have ever been exaggerated. The cardiac affections susceptible of amelioration have thus been summarised (I quote Burney Yeo): "Valvular insufficiencies at their commencement—i.e., about six months after the beginning of the endocarditis; cardiac affections at the onset of failure of compensation, functional insufficiencies, mitral constriction, with or without arrhythmic palpitations, arterial affections at the period of heightened tension, and cardiac disturbances of renal origin with dyspnoea due to alimentary toxins; finally, functional troubles, fatty accumulations about the heart, palpitations of peripheral origin due to vascular spasm, cardiac disturbances during growth with malformed thorax, pseudo-anginas, and the unstable pulse of the neurotic." Bourbon Lancy is a quiet, agreeable little spa with a sedative, equable climate, well suited to the treatment of cardiovascular troubles.

The other French cardiac spa, Royat, quite close to the large town

of Clermont-Ferrand, offers a very decided contrast to Bourbon Lancy, in that it is stimulating instead of sedative, and gay instead of quiet. It had a reputation in the pre-Nauheim days, but that reputation was based upon its value in the treatment of what the French call "arthritisme" rather than upon its success in cardio-vascular disorders. It was indeed called the French Ems, for the reason that its waters are not dissimilar from those of the German spa, and that much the same diseases were treated at the two places. The presence of carbonic acid gas in the waters prompted it to introduce the Nauheim methods, an enterprise which has been thoroughly justified by the energy, learning and scientific honesty of its physicians. What there was of real therapeutic value at Nauheim will be found in full measure at Royat, with the addition of a delightful climate, exceptionally beautiful surroundings and an establishment which is well provided with facilities for every kind of balneary treatment. Royat has the best swimming bath that I remember to have seen on the Continent.

A cardiac spa of rather a different type from either of the foregoing is Llangammarch Wells, in Mid-Wales. Its barium waters certainly seem to be of service in many vascular conditions. With a little more local enterprise the place might very easily become highly popular.

For disorders of the respiratory system Austria had no stations of the first class to offer, and Germany one only. That one—namely, Ems—was, it must be admitted, a particularly attractive little station which was visited almost as much as a pleasure ground as a health resort. There is, however, no difficulty in finding a substitute for it. The difficulty is, indeed, in the direction of selecting, from the large number of French spas which specialise in affections of the air passages, a few which are sufficiently pre-eminent to be noticed without injustice to the remainder. Nevertheless, no one would, I think, dispute the claim of Mont Dore to be regarded as the spa *par excellence* for respiratory affections. Its speciality is asthma, but it deals very successfully with chronic bronchitis, and indeed with all catarrhal and congestive conditions of the air passages, whether upper or lower. It is especially successful where such complaints appear in people past middle age with a gouty or rheumatic tendency. The climate is mountainous, that is, bracing, with weather which is liable to be disturbed by sudden storms. The bathing establishment, with its *salles d'aspiration* and very complete equipment for every kind of modern bathing treatment, is one of the best in Europe.

Another spa which is deserving of special mention in this connexion

is Cauterets, in the Pyrenees. Cauterets is a sulphur water spa which appeals more especially to patients suffering from chronic laryngeal troubles, and is consequently much frequented by those who, like actors, singers, orators, and priests, are liable to strain or fatigue their vocal cords, and take themselves and their troubles seriously. The accommodation at Cauterets is very good, and the surrounding country is exceptionally attractive.

A certain number of mineral water stations have specialised in the diseases peculiar to women. Chief among these is Franzensbad in Austria, not far from Karlsbad and Marienbad, which has enjoyed a very great reputation in most of the chronic diseases of the female pelvic organs. The grounds for this specialisation in the case of Franzensbad appear to be characteristically capricious. Its waters resemble very closely those of the two great neighbouring spas, over which it does not seem to have had any special advantages in the treatment of gynaecological disorders. Nevertheless, Franzensbad was the "ladies' spa," and no matter what was wrong with you, whether you were gouty or obese, or bronchitic, or anæmic, or leucorrhœic, if you were a real lady, to Franzensbad you had to go. Very special stress was laid upon the treatment by mud baths, but the real secret of its success was the strong purgative element in the waters. Constipation is one of the main secondary characteristics of the female sex, and he who would succeed in the treatment of any malady whatsoever in a female patient must have this fact ever before him. It is the cause of nearly all the chronic diseases of the pelvic organs, and no treatment of these which fails to include vigorous alvine evacuation is ever likely to succeed. But the necessity is seldom recognised. In the case of the bladder we realise that slight discharges of urine may signal danger; they indicate that the viscus is distended, and we speak of overflow. In the case of the colon we allow our patients, especially our female patients, to believe that even one slight daily evacuation suffices, and permit them to continue contentedly on their constipated course, laden with ptomaines and leucomaines in which the *Bacillus coli communis* flourishes in opulent fertility.

I do not know whether Franzensbad had arrived at a realisation of the powerful factor which the purgative waters supplied to its success as a "ladies' spa"; but this I do know, that the two French spas, Plombières and Châtel-Guyon, which concern themselves very specially with the colon, have of recent years been emphasising the good effects which their method of intestinal lavage produces in chronic disorders of

the female pelvic organs, and there is no doubt that Buxton, Harrogate, and other stations where the Plombières methods are regularly employed, would tell a similar tale.

But there are "ladies' spas" which have something more to offer than purgation and intestinal lavage. In so far as mud baths are concerned, a substitute for those at Franzensbad is well supplied at Dax, a pleasant winter station not very far from Biarritz, where such baths are very successfully employed in association with the hyperthermal natural mineral water. Dax has a very equable winter climate which is very suitable for the aged and the bronchitic. The close proximity of a large forest of pine trees may account for the very sedative quality of the air.

Most of the stations which have specialised in gynæcological disorders are possessed either of strong brine waters or of sulphur waters. There are two sulphur water spas in the Pyrenees, St. Sauveur and Eaux Chaudes, both of which have acquired a very great reputation not only with French but with Spanish physicians, for both are situated practically on the frontier. Each wears a little historic feather in its cap for having cured sterility in a famous case, the one a queen, the other an empress.

The best known of the salt-water stations on the Continent is certainly Rheinfelden, in Switzerland. This is a pleasant enough station, but its close association with the Grand Duchy of Baden, from which it is separated only by the Rhine, places it rather outside the scope of the present inquiry. The next in importance is Salies-de-Béarn. This station is situated about half-way between Biarritz and Pau, from which it might be inferred that it had an agreeable winter climate. Such is no doubt the case, but although the establishment is open all the year round, in the months of November, December, January and February there is a depressing dearth of visitors. The waters are heavily charged with common salt, and are very successfully employed in all the chronic diseases of the female pelvic organs. They are also used with conspicuous benefit in the so-called scrofulous tendency in children and young people.

In this country we have two stations which can boast of strong brine waters—Droitwich, in Worcestershire, and Woodhall Spa, in Lincolnshire. The waters of Droitwich are practically saturated with chloride of sodium, and, with the exception of Rheinfelden, are the most heavily mineralised waters in Europe. Droitwich, though thus well suited for the treatment of gynæcological disorders, does not appear to

have specialised in this direction ; for its waters seem to be used chiefly in the form of baths for the relief of myalgia, neuralgia, and arthritic troubles. Very considerable success is obtained in these chronic maladies, and also in convalescence from acute disease. A middle-aged habitué of Continental spas who had thoroughly earned the gouty and rheumatic troubles which afflicted him, once told me that half an hour in the swimming bath at Droitwich was worth more to him than all the other treatments in Europe rolled into one. Droitwich is one of the British spas which is most popular with our American cousins, a fact which speaks highly for the excellence of the accommodation to be found in the hotels, and the good management of its bathing establishments ; for in such matters Brother Jonathan is very exacting.

The waters of Woodhall contain much less common salt than those of Droitwich, from which they further differ by containing some chloride of calcium, an appreciable amount of bromide and a small quantity of iodide. This composition is, in fact, very similar to that of sea-water. Unlike Droitwich, Woodhall Spa has always made rather a feature of the treatment of gynecological disorders. It is an admirable substitute for Kreuznach. The bromo-iodine content of the waters is much larger than that of the Kreuznach waters. These waters cause the absorption of inflammatory deposits wherever situated, and when the site of such deposits happens to be the sensitive female pelvic organs, the treatment is productive of excellent results. But this absorptive effect is by no means limited to such organs. A large proportion of those visiting Woodhall are afflicted with what are called the rheumatic diseases—myalgia, neuralgia, rheumatoid and other forms of arthritis. Chronic pharyngitis is also very amenable to the treatment. The resources of the place afford opportunities not only for nearly every kind of bath, but for all the modern methods of dealing with chronic disease, including vaccine treatment. The accommodation is good, and the distractions are peaceful and unobtrusive. The climate combines the characteristics of the seaside with those of a pine-wooded moorland station. The rainfall is very low and the air is very bracing. It is a good place for children ; a bad one for pulmonary complaints.

For diseases of the urinary organs Wildungen, in Germany, enjoyed a reputation which was almost world-wide. It was a very agreeable spa, and its diuretic waters, which had long been famous in such affections as renal and vesical concretions, cystitis, and other diseases local to the urinary organs, were recently being used with increasing confidence in such general disturbances of metabolism as are treated at Karlsbad,

Marienbad, and Kreuznach. For the truth is, a great change has come over the conception of the nature of these disturbances, and the best way of dealing with them; and Wildungen, conscious of the change, was seeking to profit by it. The change was essentially one in what may be called the perspective of the excretory organs. The older view regarded the bowels as paramount, and assigned a minor rôle to the kidneys; the modern view, while recognising that the bowels are of great consequence, nevertheless attaches the greater importance to the kidneys. The alvine was the German method, inconvenient, but characteristically impressive. The renal is the French method, delicate and unobtrusive, but resistless. Thus it had come about that the urinary spas were attracting to themselves a very large number of the gouty, rheumatic, diabetic, and other metabolic invalids who used formerly to go to the purgative spas. Of such patients Wildungen was getting its full share. But the pioneer in this matter was undoubtedly Evian-les-Bains, on the Lake of Geneva. This charming little station took the lead, and is likely to keep it, for there is no resort in any country which is more liberally equipped, or where, in addition to the diuretic waters, more serious attention is paid to the requirements of invalids—dietetic, balneary, and recreative. The change which Evian initiated has shown its importance by the behaviour of such well-established metabolic spas as Aix-les-Bains and Buxton, both of which have within recent years insisted increasingly upon the importance of diuresis in the treatment of the diseases for which they cater. In the matter of diseases local to the urinary organs Wildungen was, in this country at any rate, always considered second in importance to Contrexéville and Vittel. These two spas, which are close together in the Vosges Mountains, provide for much the same type of invalid. They are both deservedly popular. Of the two, Vittel, as befits the younger, is the more enterprising.

One of the best known spas in Germany was Aachen, or Aix-la-Chapelle, and it need not be denied that the special treatment for which it was famous produced results which were the envy of other places catering for the same disease. Wherein the superiority of Aachen over these others consisted I do not pretend to say, but the superiority itself I have been rather reluctantly forced to recognise on several occasions. There are two substitutes in France, but, so far as I am aware, none in Great Britain. The two in France I mention in order of merit. Luchon, a sulphur water station in the Pyrenees, not far from Toulouse, is a very charming summer station with an altitude of over 2,000 ft. Mercurial

treatment is very well carried out there, the local physicians having for some years past paid very special attention to the management of luetic and post-luetic complaints. Uriage, quite close to Grenoble in the mountains of the Dauphiné, is also a sulphur water spa with a considerable elevation above sea-level. Like Luchon, it is open only in summer-time, and like Luchon, it has recently made a special feature of the treatment of constitutional syphilis by inunction and other modern methods. It is a very agreeable little station in the same district as Aix-les-Bains.

Although not strictly within the scope of the subject, I cannot conclude this brief review without some mention of two well-known stations, lest the careless should think that I deemed them unworthy of mention. If we except Wiesbaden, Germany has no winter spas, and Wiesbaden in winter is only partially open. Austria has none. The two to which I would call attention are both essentially winter stations, and cannot, therefore, be cited as substitutes for any Teutonic resorts. The importance of a thermal water station, which is at the same time blessed with a suitable winter climate, is very generally admitted, and can scarcely be over-estimated. Of such stations there are only two in the first rank. One is the ancient and beautiful City of Bath, in Somerset; the other is the comparatively modern Pyrenean station of Vernet-les-Bains. These places have waters which closely resemble one another; they are both hyperthermal, and they are used therapeutically in much the same manner, for much the same complaints. These complaints belong to the metabolic and arthritic category, and the stations may be regarded as winter supplements to Aix-les-Bains, Evian-les-Bains, Vittel, and other Continental stations already mentioned; and in this country, to Harrogate, Buxton, and Llandrindod, at which such diseases are admirably treated by physicians of proved scientific capacity. The difference in the climates and in the general features of the two places is very marked.

Vernet-les-Bains cannot pretend to compete with Bath. Its climate is bracing. In winter it is just below the snow-line, at an elevation of over 2,000 ft., and though cold, the air is dry and windless. There are no churches, there is no football, and no golf. The shops are primitive; but the hotels are modern, and the cooking is French; the baths are modern, and the masseurs are French; and there is a casino. If you are in search of pleasant experiences you may visit Spain in an electric tramway. Should you be interested in architecture you may visit Toulouse, which calls itself "*la ville des fleurs et des jolies femmes*,"

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and is one of the few towns in France whose monuments survived the ravages of the Revolution. And if you are sensitive to the influence of ancient tradition you may transport yourself into another world at the neighbouring town of Carcassonne, the only perfectly preserved specimen of a thirteenth or fourteenth century fortified town in Europe.

BIBLIOGRAPHY.

- BARADUC (et autres). "Clinique Hydrologique," 1909.
HUGGARD. "A Handbook of Climatic Treatment," 1906.
LANDOUZY. "Crenothérapie, Climatothérapie, Thalassothérapie," 1910.
WEBER, Sir H., and PARKES WEBER, Dr. "Climatotherapy and Balneotherapy," 1907.
WOOD, NEVILLE. "Health Resorts of the British Isles," 1912.
YEO, BURNEY. "Therapeutics of Mineral Springs and Climates," 1904.
"Stations Hydro-minérales, climatériques et maritimes de la France," 1900.

DISCUSSION.

Dr. BEZLY THORNE stated that in his experience effervescing baths certainly relieved cardiac dilatation, an observation that had been vouched for by Professor Grainger Stewart and Dr. Huchard, of Paris. In a paper at the International Congress of Medicine in Paris, entitled "*Les Maladies du Cœur et les Bains Chlorurés Artificiels*," he had pointed out how the same treatment could be carried out in France. For satisfactory results certain conditions must be fulfilled: mastery of technique, careful medical supervision throughout the course, and security from the cares and distractions of habitual environment. There were many cases in which treatment at home yielded results unattainable abroad. This applied especially to patients who were confined to the house by advanced disease or by some intercurrent malady; those less severely affected for whom a sea-passage followed by a long and fatiguing land journey were contra-indicated; those who required a carefully regulated diet, and particularly those in whom some form of toxæmia required concurrent treatment by means of autogenic vaccines. As at Nauheim, effervescing baths should not be employed during the earlier stages of the treatment. The patient was gradually prepared for the increased cutaneous excitation of the effervescing baths by gradually increasing additions of mother-water, containing mainly calcium chloride. Harm was sometimes done by inducing a degree of vascular dilatation to which a weak myocardium was not able to respond. He had recently given radio-activity to such baths by the addition of a preparation in which radium barium sulphate was fused into sodium chloride and the resulting compound ground into a coarse powder. He believed that the addition of 1 lb. to a 30-gallon bath imparted radio-activity equal to that of the natural waters of Gastein. As to the cases for which the baths were suitable, attention had been too much directed to the heart. Increase of arterial lumen occurred simultaneously with, if it did not precede, increase of systolic energy; vascular conditions, such as atheroma, arterio-sclerosis, and Raynaud's disease, were therefore sometimes benefited. There was a wide scope for home balneological treatment.

Dr. E. I. SPRIGGS (Banff) said that to those unfamiliar with Continental methods of treatment nothing was more striking than the prevalence of sanatoria for all kinds of diseases at German health resorts. The institutional treatment of diseases was of great antiquity, but until recent times had been mainly confined to the poor. Those who could afford it naturally preferred to be treated at home, and would in the future also doubtless continue to do so as a rule. Our Teutonic relatives, with their love for routine and classification, for tenement dwellings and restaurant life, took kindly to sanatoria of all kinds—the British not so well. There were, however, many diseases which

could no longer, with the growth of scientific medicine, be investigated and treated properly by any one man, but required a team of workers—clinical, chemical and physical. In such cases it conduced to efficiency and saved time and money if all the workers and the patients were under one roof and one control. In such complaints as these they were, he thought, bound to follow the Continental lead, but not, he hoped, without discrimination. It was a thankless task to criticise where they had learned so much, but, while honestly acknowledging their debt to German example, they should copy only what was good and avoid the less desirable features. For instance, in only a few German sanatoria was sound laboratory work done. Nearly all had a show laboratory, but many of these sent out their material to other laboratories which returned long lists of analytical figures, often of no clinical import, and, perhaps for that reason, accompanied by no adequate interpretation. It was, of course, very difficult to make observations on total metabolism unless the patient was close to the laboratories. Sample analyses might be misleading. Again, there was a great tendency abroad to over-classify patients and treat them in batches. In some well-known resorts, for instance, there was a definite series of a few diets which everyone seemed to work through. This was a great saving of trouble and expense, and those who only needed rest, change, or a simple life did well on it, but it was not in the interest of the real sufferer. For if the patient and the patient only be considered, it would be found that there were seldom more than a couple of people out of twenty or thirty for whom identical diets, both as regards quality and quantity, would be prescribed. The specialisation of forms of treatment other than dietetic was also frequently carried to excess. Thus in one, gastric lavage was the main feature, in another a special bath, in another gymnastics, electrical treatment, or emanations, and so on up to the border of charlatanism and across it. The fixing of the length of "cure" was an unscientific feature. It said in so many words, "If our routine treatment does not put you right in four weeks or so, you are a troublesome patient and will do us no credit. Please move on." But not all German sanatoria were open to these charges, though many were so. The speaker had visited a good number during the last fourteen years, and he might say that those which he regarded as the soundest from the medical point of view were, with one or two exceptions, not those most frequented by English and American folk. It must not be forgotten that the isolation of the patient and freedom from ordinary duties and cares were an important factor. Distance was an advantage. The same results would not be obtained if the patient was so near his work that he could run home for week-ends. It might be of some interest to compare for a moment his own experience of institutional treatment at Duff House with that of former consulting practice in London. Diagnosis was, of course, more searching because the laboratories and workers were at hand; there was more time, and the food and mode of life of the patient could be controlled as desired. As regards treatment, he must say that intestinal disorders and the various forms of stomach-ache seemed to be more tractable than they did

formerly. In the endeavour, too, to increase or reduce weight it was clear that much time was saved if the value of the food not only served but actually consumed was known from day to day in scientific terms. In glycosuria there was no comparison between what might be done after consecutive metabolic observations and what without them. Every case ought to be thoroughly tested for at least a month with complete control of diet and daily analyses of acid bodies in the urine, as well as the sugar in the urine, and from time to time in the blood. One could not prophesy what forms of carbohydrate would be good or bad for the patient. Only by trying could this be found out. But with a knowledge of the chemical features of the case it was possible to furnish the medical adviser of the patient with information which enabled him to control the condition entirely in mild cases, and in severe ones to add to the expectation of life. It must freely be admitted that the demonstration of these advantages was owing to German work and enterprise. He hoped, however, that in this country they would go one better. They must aim at avoiding the commercialism too often obvious in their institutions; we must not frighten the fearful and create neurotics by giving them lists of details suitable for perusal by their medical advisers only; they must use any method of diagnosis and treatment shown to be good, and they must never depart from that individual consideration and treatment of the patient as a human being which was a feature of our national genius.

Dr. CALTHROP (Woodhall Spa) said that he had not noticed any reference to other than British and French health resorts as substitutes for the Teutonic spas; he would therefore like to draw attention to some of the Italian ones such as Salsomaggiore, Acqui, Monte Catini and Lucca, the equipment of which he was able to say from his personal observation was of a high order. It was worth recording that not only was Italy an old friend to England, but that since Roman times Italian physicians had practised and studied the use of mineral waters and baths. Egyptian watering places also must not be overlooked.

Dr. REGINALD HAYES (London) said that one expression of opinion in Dr. Leonard Williams's interesting paper gave him particular satisfaction—namely, the high estimation in which he held Aachen. He was surprised, however, to hear him say that he did not know of an English substitute for this spa, and might be allowed perhaps to suggest a very efficient one—namely, London. He wished specially to draw attention to the fact that the Aachen treatment of syphilis and tabes could be carried out in London quite satisfactorily. The essential part of this treatment was well known, and consisted of the inunction of a 33½ per cent. mercurial ointment with the bare hand of a skilled rubber under strict medical supervision, in addition to the use internally and externally of the muriated sulphur waters. The important part played by the waters of this group in assisting the mercury has been well explained by Chatin, of Uriage. Some years since, after a study of the technique on the spot, he began to practise the method in London, working with salts

evaporated from the springs for drinking and bathing, sometimes, indeed, using the water imported in bottles for drinking purposes. The advantages of the Aachen treatment over other methods of administering mercury were generally admitted. If skilled rubbers were employed, with close attention to detail, there was practically no difference between the results obtained abroad and at home. This conclusion had been arrived at after having observed its effect during the past seven years on a number of sufferers from serious manifestations of syphilis. Among many things learnt from the Aachen school was the curability of some cases with symptoms described as tabes, though here treatment was long and improvement slow.

Dr. PHINEAS ABRAHAM (London) considered that the Section was greatly indebted to Dr. Leonard Williams for his able and entertaining paper, and especially for his outspoken frankness in referring to some of the weak points in the exploitation of the British spas. Although they had excellent and just as good waters in this country, he regretted to say that, from a dermatological point of view, they were not as thoroughly or as efficaciously used as they were on the Continent. For instance, certain seborrhœic cases did remarkably well under vigorous local treatment with strong sulphur waters. At Schinznach and some other places abroad the bathing authorities took care (1) that there was an adequate and copious supply of the medicinal water; (2) that the water was brought from the spring in wooden pipes and never exposed to the air; (3) that it was warmed without admixture with other water; (4) kept under pressure; and (5) forced after "pulverisation" into the skin of the parts affected. He was not aware that he could get this done for his patients in any of their own watering places. More than once he had visited, and had frequently sent patients to the principal British spas, and he had been astonished to find that in some cases the common town water—instead of their much advertised mineral water—had been largely used, pure or mixed, in their palatial bathing establishments. In one well-known bathing place the strong sulphur water was notoriously insufficient to "go round," and was necessarily mixed with other water, or in the "douche" and "massage" baths perhaps not used at all; in another the water, which as it emerged from the spring contained free H_2S , was stored in tanks, and by the time it reached the baths was innocently free of any sulphur, as Dr. Abraham had proved on two occasions. Both these celebrated spas had every conceivable kind of bath—"air douche," "massage," "Plombières," &c.—and all the newest X-ray and electrical appliances, as well as "kursaals," grand hotels, and gardens galore. He would suggest that the local authorities should spend their money better by trying to increase the supply of the valuable local waters and to prevent the loss and evaporation of their important ingredients. Douches, massage with common water, X-ray and electrical work, &c., could obviously be just as well done in London. In reference to the Aachen treatment of syphilis, he was glad to know that measures on the same lines were being employed at home. He doubted, however, whether they could ever be

so well carried out as at Aix-la-Chapelle, for many reasons. Over there "every one was doing it," but here he did not think that any of his patients would submit, for instance, to washing out his mouth with an antiseptic every half hour during the day.

Dr. MANTLE (Harrogate) said he could only substantiate what had been said as to Harrogate being a most complete and up-to-date spa, situated as it was on a bracing stretch of moorland, in which no fewer than eighty springs had been found: the best of these, as the result of experience, were made use of for drinking and bathing purposes. Harrogate had long been a rival of the great Continental spas. There had been difficulties in exacting from patients the dietetic regimen which many were ready to adopt on the Continent whilst hesitating to do so in their own country, but this fault was now much less in evidence.

Dr. R. ACKERLEY (Llandrindod) said he agreed with previous speakers that it was most desirable that there should be a much stricter régime at the English spas; but was not the great difficulty in any change to be found in the English character? At Rome the Englishman would do as Rome did, but at home he insisted on his right to go his own way, a liberty that was not always to his own interest.

The PRESIDENT said the Society was much indebted to the writer of the paper, which was of singular utility at the present time, for indicating in such an able, clear, and interesting manner the spas they would be compelled to select for patients owing to international complications. When considering some of the German and French spas well known for the treatment of gynæcological affections one was struck by the fact that we had in this country spas with similar waters, which were not utilised, or only to a slight extent. He believed there was ample scope for an extension of their employment. With regard to Woodhall, the only British spa that had achieved a reputation for the treatment of diseases of women, he had noticed results quite as good from treatment there of chronic pelvic affections as at Kreuznach or Franzenbad. In fact, comparing Kreuznach with Woodhall, he had found the latter resort more efficacious, because the question of climate came in, Woodhall being mildly bracing, whereas Kreuznach, lying in a valley close to a river, was very hot and relaxing in summer. Salsomaggiore (Italy), whose waters resemble those of Kreuznach and Woodhall, had been found of utility in similar cases. It was probably known to most that Biarritz, the well-known marine station on the south-western coast of France, provided strong common salt baths, supplied by the springs of Briscous, and that a treatment resembling that of Kreuznach was carried out there. He considered that at our sea-shore resorts sea-water baths and copious douchings with sea-water deserved trial in many cases of chronic inflammatory pelvic conditions and in affections where leucorrhœa was a prominent symptom. Amongst the sea-shore places available, choice could be made of a climate suitable for the

patient, and it was worth while considering that treatment might be obtained at some of the south coast places at all seasons of the year. There were two spas with chalybeate waters that he thought were not mentioned in the paper, celebrated for the treatment of certain affections in women—Schwalbach in Prussia, and Spa, the beautiful Belgian resort, situated about sixteen miles from Liège. It was unfortunately impossible at the present moment to make use of Spa as a substitute for Schwalbach, but he trusted the day was not far distant when its dual claims to their consideration would be remembered by the medical profession of Great Britain.

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The Society does not hold itself in any way responsible for the statements made or the views put forward in the various papers.

Section for the Study of Disease in Children.

November 27, 1914.

Mr. T. H. KELLOCK, M.C., President of the Section, in the Chair.

THE PRESIDENT said that before the ordinary business was commenced he wished to express his thanks for the honour which the Section had done him in electing him President for the current year. He assured the members that he would do all he could to help and further the aims of the Section. He was only sorry that the times were such that their thoughts were necessarily mixed up with other matters, and the meetings of the Section must suffer. The Section had decided, rightly he thought, to hold a reduced number of meetings, to see whether the work of the Section could be satisfactorily carried on. His experience in one of the other Sections induced him to believe that the meetings of this Section could, and would, be carried out successfully. At present the hope was that all the advertised meetings would take place, and certainly the present meeting was a very good indication of success for future ones.

Child with Tooth erupted at Birth.

By E. B. GUNSON, M.D.

MALE, infant, one of twins born at full term on October 4, 1914. The left lower median incisor was erupted at birth. On the tenth day the tooth, which was then loose and attached only by the gum, was removed as its presence interfered with suckling. The right lower median incisor had then also appeared through the gum. The child was well developed and presented no other abnormality. The fellow twin was normal.

DISCUSSION.

Dr. GUNSON added that he had not brought the case forward so much because it was a rare condition, as maternity statistics showed that teeth were present at birth in about one in every 5,000 cases, but he hoped to hear a discussion on the ætiology of such a condition. Many authorities held that teeth appearing at this period indicated a syphilitic taint in the child; Henoch, however, thought it was due to periostitis of the alveolar margin, involving the socket of the tooth, and that the inflammatory process tended to push the tooth forward prematurely. Dr. Rolleston had brought to his notice a contribution by two French writers¹ stating that these teeth were of the nature of teratomata. He had had a section made of one of the teeth and placed it under the microscope; he did not think it showed definite changes. He hoped to hear the views of members.

The PRESIDENT (Mr. T. H. Kellock, M.C.) regarded it as a rare condition. With regard to the suggestion that syphilis might be at the bottom of the early eruption of these teeth, he thought the fact that they were fairly commonly associated with hare-lip and cleft palate would be against this idea, because it was not at all uncommon to find babies with double hare-lip or cleft palate with teeth erupted either at birth or soon after. These cases, therefore, seemed rather to be instances of developmental error than of a pathological condition.

Dr. J. D. ROLLESTON said it was interesting, historically, that several very distinguished men had had teeth erupted at birth; he did not think that any of them were the subjects of inherited syphilis. They included Richard III, Louis XIV, Cardinal Mazarin, and Mirabeau.

Case of Keratosis Follicularis Spinulosa.

By J. L. BUNCH, M.D.

THE patient was a boy, aged 4 years, in whom the first skin lesions had been noticed some eighteen months ago on the neck, and later on the arms, back, and abdomen. They consisted of small acuminate papules, pale in colour, which were even more perceptible to the touch than to the eye. There are now a large number of these papules, which to the hand give somewhat the sensation of a nutmeg-grater, but they evidently cause no subjective symptoms, and there is absolutely no sign of scratching. The scalp is not involved, and the case therefore differs

¹ Balard et Commues, *Journ. de Méd. de Bordeaux*, 1913, xliii, p. 263.

from one which Dr. Bunch showed recently, in which a hyperkeratosis of the pilo-sebaceous follicles of the scalp and eyebrows had led to the breaking off of all the hair on these regions, and, practically, a comparatively well defined alopecia.

DISCUSSION.

Dr. BUNCH added that the case showed complete absence of inflammatory phenomena round the lesions. The condition was perhaps better known under the names lichen spinulosus and lichen pilaris. He, however, objected to the name lichen applied to it, as there was in this case and many others an entire absence of inflammation around the follicles. There were no subjective symptoms in the case, whereas in adults this disease was frequently accompanied by marked symptoms of irritation. There was in this case no history of heredity bearing on the condition.

Dr. TRAVERS SMITH asked whether this condition was not associated with some variety of ichthyosis.

Dr. BUNCH replied that he drew a distinction between the two, in that ichthyosis covered a more extensive area, and the hyperkeratosis in the disease now shown was limited to the pilo-sebaceous follicles. Possibly the original cause might be of the same nature. The agent he believed to be a toxin.

Friedreich's Disease with Spastic Phenomena.

By J. PORTER PARKINSON, M.D.

E. L., AGED 13 years, was the ninth of ten children; his mother's eleventh pregnancy terminated in a miscarriage. For three years before patient's birth the mother was very depressed and almost insane. Patient was a full-term child, healthy at birth, but before the age of 3 years had scarlet fever, measles, chicken-pox, whooping-cough, and diphtheria. He began to walk at 3 years but never walked well, and was never very intelligent. (He is now only in the second standard, though 13 years of age.) He began to stammer two years ago. He is subject to "bilious attacks."

He is now a fairly well grown boy with a rather unintelligent expression. Speech indistinct, slurred and syllabic. Gait spastic, uncertain, tends to keep the heels raised from the floor; slight difficulty in turning. Romberg's sign negative. The legs are held stiffly, the muscles hard and well developed; the foot shows marked pes cavus

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with some equinus; the great toe is hyperextended at the proximal joint, and the extensor tendon very prominent. There is marked knee and ankle clonus and an extensor plantar reflex. The arms are in every way normal, grasps equal, no ataxy of arms or legs. Cranial nerves normal, no nystagmus, and no changes in the fundus of the eye. The spine is normal, and the bladder and rectum not affected. Sensation is normal. There is no similar disease in the family.

I believe this to be an example of Friedreich's disease in which the lateral columns of the cord are mainly affected; there is no sign yet of posterior column disease, anyhow Lissauer's tract is not affected at present. There is some resemblance to the spino-cerebellar ataxy described by Sanger, but it differs from this in the absence of optic atrophy.

DISCUSSION.

Dr. PARKINSON added that the heading "Friedreich's Disease" was intended as a challenge to anyone who wished to discuss the diagnosis. Specific trouble was thought of, but the Wassermann reaction was definitely negative, and the family history was remarkably good. The patient was the ninth arrival of a family of ten children; the eleventh pregnancy resulted in a miscarriage. The teeth of the boy were slightly suggestive of hereditary syphilis, though he presented nothing else suggestive of that disease. He believed that in this case the posterior column was either unaffected or very little affected up to the present time; there was no ataxy.

Dr. E. CAUTLEY suggested that this was a case of encephalitis occurring in the course of measles, and affecting the motor region to some extent, producing in that way secondary spasticity.

Dr. MIDELTON thought the history of diphtheria was important, as the micro-organism of that disease seemed to have a selective action on the nervous system. Dr. Parkinson evidently thought the disease progressive, as he spoke of certain events not having occurred *yet*. Could something be done to arrest the progress? The organism of diphtheria might still be at work.

Dr. PARKINSON replied that the child had never walked well, and the difficulty had come on gradually, not at all acutely. That history was against the view that there was encephalitis, or anything of that kind. With regard to treatment, he would have been very glad of any suggestions; he was quite willing to adopt anything which promised well.

Tumour of the Upper Extremity of the Femur.

By L. BROMLEY, M.C.

A. G., AGED 12 years. This patient was admitted to the Victoria Hospital for Children on June 13, 1914. A swelling of the right thigh had been noticed for the previous seven or eight weeks. He complained of pain in the right leg, especially after walking; on some days the pain was so severe that he was unable to walk. When the patient was aged 3 years he is said to have fractured the right femur, since then he has had intermittent pains of an aching character, which have increased lately.

On examination a hard swelling of the upper third of the right femur was felt. There was no definite margin, and no heat or tenderness. Movements at the hip-joint were free. Skiagraphic examination showed an endosteal growth of the femur.

An exploratory incision was made. The bone was found to be expanded and covered by normal periosteum; a thin layer of compact bone surrounded a mass of cartilage which had entirely replaced the medullary cavity. A portion was removed for microscopic examination. This showed pure chondroma, and there was no suggestion of malignancy.

DISCUSSION.

Mr. BROMLEY added that cases had been recorded in rickety children in which fractures had led to the deposit of cartilage in the region of the fracture, and the name "callus tumour" had been applied. He would be glad of more information on that point, because the history of this case suggested that the condition had some connexion with the fracture. He exhibited skiagrams of the case, which were taken by Dr. Melville. The diagnosis before exploration was either myeloma or chondroma. Exploration revealed an avascular, homogeneous, and purely cartilaginous tumour. At that time it was too large for complete enucleation. Since the exploration in June the patient had been kept in a Thomas's splint, and had not been on his feet. The patient suffered much pain, extending down the back of the leg, presumably due to pressure on a nerve. If allowed to go on, he supposed the best one could hope for was that the tumour would ossify. He asked for suggestions as to treatment.

The PRESIDENT said it was interesting to hear what Mr. Bromley said about injury causing the chondroma. He had had a case of the same kind not long ago. A man employed by a railway company had a severe blow on his finger when in the act of catching a bolt which had been driven out from above. It caught the second phalanx of his first finger, and for a time he was treated for fracture of that phalanx. As the finger began to swell the condition was thought to be tuberculous, and the man came to London. The skiagram led him to think he had a cyst in the bone, but on operating he found an enchondroma of the phalanx, which evidently originated from the injury. He scraped it out, and the patient did very well. He would have thought it advisable in Mr. Bromley's case to adopt some treatment. At present the tumour was innocent, but there was always a danger of sarcoma supervening. He suggested it would be worth the risk of destroying a considerable quantity of that bone by scraping out the cartilaginous tumour; the shell of bone remaining might suffice to hold the bone together while new bone was being formed.

Two Cases of Heart-block.

By T. R. WHIPHAM, M.D.

Case I.—A female infant, aged 2 years 2 months. The child was born at full term, and has always been backward. The first tooth was not cut until the age of 9 months, and she did not sit up until she was a year old. Up to the present she has not walked or talked. She is a well-nourished child with a good colour and presents no clubbing of the digits. The pulse is slow, full, and regular. The right side of the heart in the skiagram appears to be enlarged, and the outline of the organ is almost globular. All over the præcordium a loud systolic bruit is audible, the maximum intensity being between the apex and the left sternal border and extending up to the pulmonary area. The heart-rate is slow, but it varies from time to time, the lowest recorded being 48, and the highest 80. The child was first admitted into the Evelina Hospital with whooping-cough and slight bronchitis, but even then the heart was only beating on the average about 64 per minute, and at times the respirations were quicker than the pulse. Paroxysms of coughing, moreover, caused very little, if any, acceleration of the heart. No cardiac symptoms have at any time been observed. An electrocardiogram, kindly taken by Dr. Parkinson, shows a perfectly regular 2:1 heart-block. There is a polycythæmia of 8,400,000 red corpuscles per cubic millimetre and the hæmoglobin value is 110 per cent.

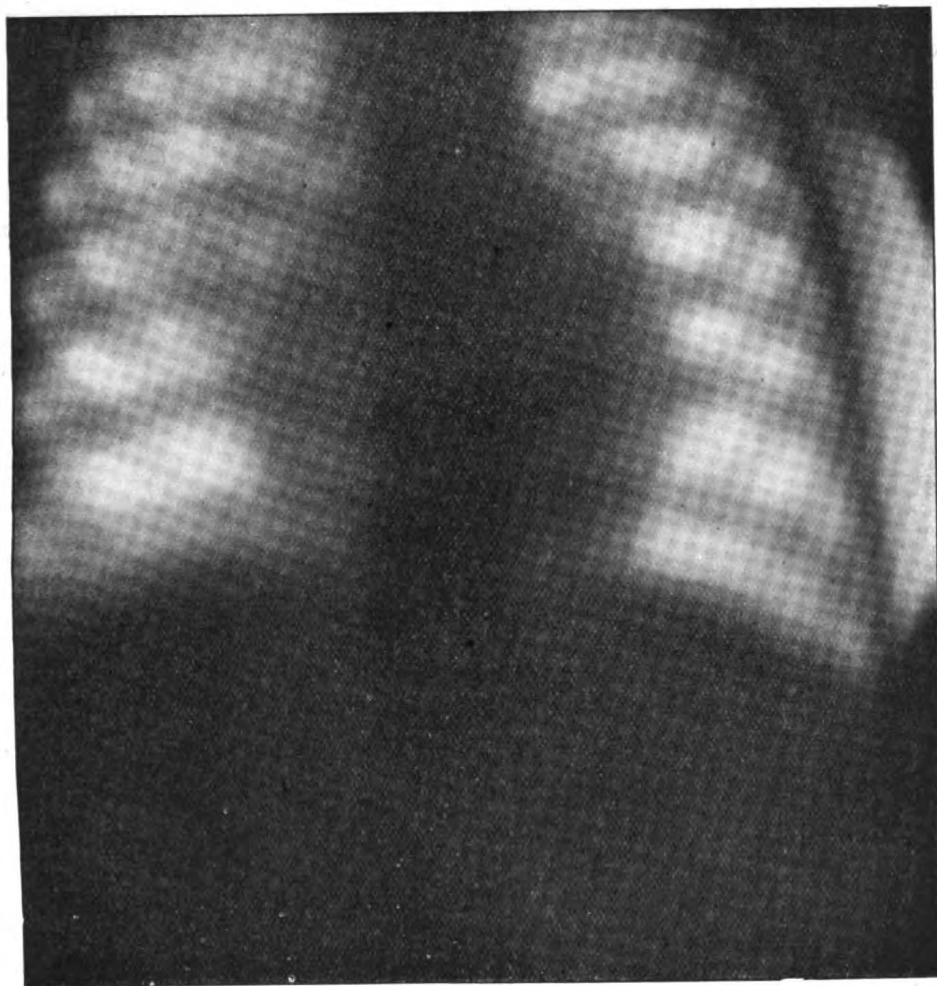


FIG. 1.

Skiagram of the heart (Case I).

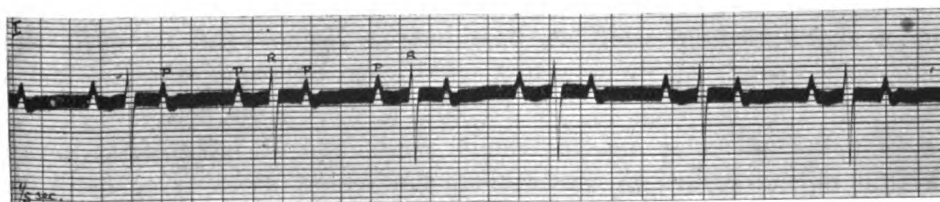


FIG. 2.

Electro-cardiogram (Case I).

Case II.—A girl, aged 12 years. With the exception of measles at an early age she has had no illness. Six years ago it was first noticed that she had a slow pulse, but it was not until eighteen months ago that any cardiac symptoms occurred; since then she has complained of pain around the heart on exertion. She is a well-grown girl and shows no cyanosis. The pulse is slow, usually between 50 and 60 per minute, and slightly irregular in rhythm; the extreme rates noted have been 40 and 64. The heart is of normal shape but it is considerably enlarged, especially on the left side, as seen in a skiagram, and there is a heaving impulse in the fifth interspace well outside the nipple line.

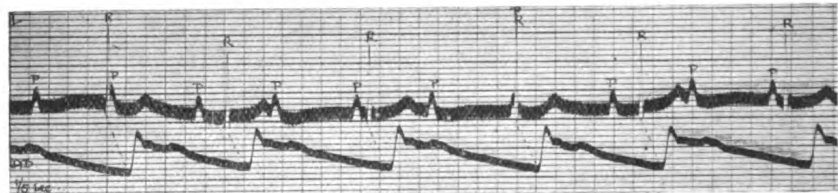


FIG. 3.

Electro-cardiogram (Case II).

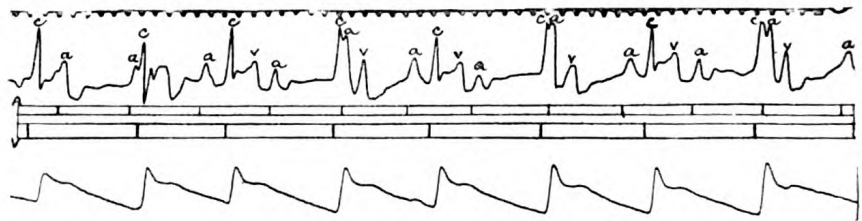


FIG. 4.

Polygraph tracing of the heart and radial pulse (Case II).

A systolic bruit is audible with its maximum intensity in the fourth interspace near the sternum; occasionally at the apex and a little outside a slight diastolic whiff has been heard. The second sound in the pulmonary area is at times reduplicated. An electro-cardiogram and a polygraph tracing taken by Dr. Parkinson show a marked dissociation between the auricular and ventricular beats, and an irregularity in the rhythm of the latter. A subcutaneous injection of atropine sulphate ($\frac{1}{60}$ gr.) caused the ventricular rate to be increased from 40 to 60 per minute, but did not affect its arrhythmia. It appears that there is no relation between respiration and this irregularity, and that the patient

at times has complete heart-block with pulse slow and regular, and at times incomplete heart-block of high grade (3 : 2, 2 : 1, and mixed) which produces an irregular pulse. The blood count shows 4,800,000 erythrocytes per cubic millimetre, with hæmoglobin 80 per cent.

DISCUSSION.

Dr. WHIPHAM said that both cases were undoubtedly due to a congenital defect involving the auriculo-ventricular bundle. Cases of heart-block were known to occur in children as the result of infective processes, but the occurrence of congenital cases supported by the evidence afforded by electro-cardiograms was, he thought, uncommon. He asked for views as to the cause and prognosis.

Dr. PORTER PARKINSON asked whether, in the younger of the two patients, there was any possibility of syphilitic infection. Sometimes syphilitic lesions occurred in the heart in young children quite early. Some years ago he showed a gumma in the heart of a child under 2 years old, and post mortem that was the only syphilitic lesion evident. If that were so in this patient it might account for the heart-block.

Dr. G. A. SUTHERLAND did not think such cases had been shown before the Section previously—i.e., heart-block in a patient apparently in a normal state of health. He hoped the excellent tracings exhibited would be reproduced in the *Proceedings* with the full description. The fact that both the patients suffered from congenital disease was very striking, and most people would be inclined to connect the congenital heart disease with the heart-block here. If one assumed that the lesion was a patent ventricular septum one could understand why there should be a certain amount of heart-block present, because the distribution of the nerves of the bundle of His might be interfered with owing to the patency of the septum. He also noticed in the tracings an auricular irregularity. He thought the explanation of that was, that in children it was almost impossible to get a regular pulse when the heart was beating slowly, owing to the influence of respiration on the length of the diastole. Assuming, however, that there was a lesion due to congenital defect causing the heart-block, he did not think the prognosis need be necessarily bad. The elder girl had apparently lived her thirteen years without cardiac symptoms, and hence there seemed no reason now for anxiety.

Dr. F. J. POYNTON said though he did not think the case he showed at the Children's meeting at the International Congress was of quite the same nature, it was of interest in its bearing. It was that of a small child who had epileptic fits at 6 months of age and was brought to the hospital on account of what the mother said was indigestion. The heart was extraordinarily irregular, and he asked Dr. Lewis to take an electro-cardiogram of it, but

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the child cried so much that it was then a failure. Dr. Lewis tried again at the age of 2 years, and the peculiar beat was due to auricular extrasystole at regular intervals. He kept the child under observation for two years; it had now been sent away. During that time she developed a systolic murmur, but never seemed to be ill, although the extrasystole continued. In the case he had referred to, the irregularity only disappeared when she had an illness and the temperature rose: later the same curious rhythm developed. No one at the Congress could explain or throw light upon the condition, of those who saw her.

Dr. WHIPHAM replied that, so far as he knew, there was no indication nor history of syphilis in the baby. In reference to the case of gumma, he asked whether the patient had a murmur. [Dr. PARKINSON: No.] With regard to the cause, he thought it was a patent intraventricular septum. Dr. Sutherland mentioned the irregularity of the auricular beat. He (Dr. Whipham) thought that it was a sinus arrhythmia, due to nervous influences, or possibly to respiration. It was a point which might be investigated more fully.

Diabetes Insipidus with Infantilism.

By T. R. WHIPHAM, M.D.

THE patient is a boy, aged 4 years, the sixth child in a family of eight, all of whom have been backward. He was bottle-fed, cut his teeth late, and did not walk until he was 2 years old. He cannot yet talk. Height, 2 ft. 9 in.; weight, 1 st. 6½ lb. About two years ago he started to pass a large quantity of urine and at the same time complained of great thirst, drinking from puddles in the backyard, and even his own urine. From this time he is said to have wasted. On admission to hospital he was passing from 200 to 900 c.c. of urine *per diem*, but under general treatment and rest the maximum has been 300 c.c. in a day. For the past month he has been given polyglandin, but without any appreciable effect. The urine is very pale, of low specific gravity, and contains no abnormal elements.

Case of Giant Nævus.

By J. D. ROLLESTON, M.D.

GIRL, aged 7 years, showing pigmented hairy and warty nævus and numerous accessory nævi. The principal nævus starts in front, slightly internal to the anterior border of each sternomastoid, and passes backwards, occupying each posterior triangle of the neck and extending 1 in. below each clavicle. Behind it extends as a continuous sheet upwards to the external occipital protuberance, outwards to the acromion process and downwards to the spine of the twelfth dorsal vertebra, where it ends in a tapering point.

The pigmentation of the nævus is dark brown, interspersed with vitiliginous patches, and is interrupted at the periphery by linear areas of unpigmented skin running obliquely downwards and outwards. The skin of the pigmented area is sharply marked off, but is not raised above the level of the normal skin, and shows no sensory changes. There is no spina bifida. The nævus is covered by downy hairs mostly of a light colour, except in the interscapular region where they are darker. Several warty growths of the same colour as the pigmented skin are present in the cervical and upper dorsal area of the nævus, the largest being situated just below and to the left of the external occipital protuberance.

In addition to the principal nævus other nævi are scattered over the rest of the skin. The largest are situated on the right thigh and right buttock. Most of the lesions situated on the limbs are hairy, but a few are smooth. A few smooth nævi are present on the soles, but the palms are free. The fewest and smallest lesions are on the face.

There was no hereditary nor familial history of similar lesions, but there was a definite history of a maternal impression. During the third or fourth month of pregnancy the mother had been frightened by a black and tan dog which had tried to bite her husband, and had thrown her arms over her head. She had anticipated that the child would be marked, though her doctor had tried to persuade her to the contrary.

Dr. Rolleston said that a giant nævus was one of the curiosities of medicine. The site of predilection for such growths was usually the "bathing drawers" area—i.e., the lower part of the back, abdomen, buttocks, and upper third of the thighs. A giant nævus of "tippet" distribution, as in the present case, was quite exceptional, and he could

find only four similar cases on record (Bircher [3], Bresovsky [4], Hallopeau and Lasnier [7], Joseph [8]). In Sir John Bland-Sutton's book on "Tumours" [2] there was a picture of a man with a nævus of somewhat similar distribution, but there was no history of the case. In addition to the "tippet" nævus there were a number of smaller nævi



FIG. 1.

Case of giant nævus (front view).

scattered over the face, trunks, and limbs, and the comparatively large nævi situated on the right buttock and right thigh suggested an abortive attempt at "bathing drawers" distribution. As was the rule in cases of giant nævi, there was no hereditary or familial history of similar lesions, but there was a definite history of maternal impressions, as in

several of the recorded cases, of which those recently reported by Drs. Dore [5] and Whitfield [9] were examples. Such a history, however, was by no means invariable. Dr. E. C. Williams, of Bristol, had kindly allowed him to show a photograph of a large pyriform hairy and warty nævus in a boy, extending from the upper dorsal to the mid-lumbar

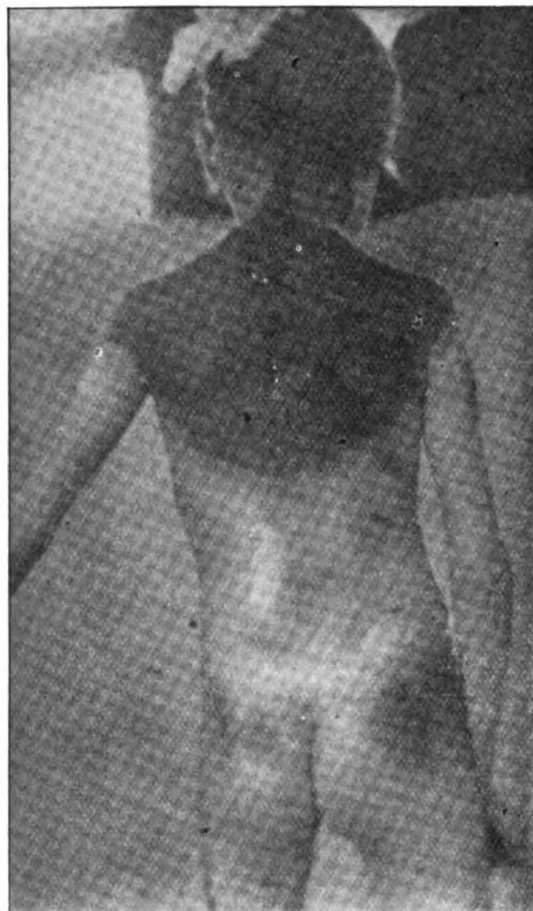


FIG. 2.

Case of giant nævus (dorsal aspect).

region. In that case there was no history of maternal impression. In the present case there was no history or evidence of syphilis, but in view of Gaucher's theory [6] that nævi, like dental and other dystrophies, were due to heredo-syphilis, a Wassermann's reaction had been performed (Dr. Cartwright Wood) and proved negative.

The question of treatment was of importance from an æsthetic point of view. Alibert [1], in his classical work, related the story of a young woman in whom the nævus was so extensive as to resemble a black waistcoat and drawers. "The husband, who adored his wife when he had only seen her hands and face, was penetrated with horror when he learnt of this deformity. Separation was pronounced and plunged two families into the deepest affliction."

The mother of the present case is naturally anxious that something should be done before the child reaches the age of marriage.

Dr. Rolleston would be glad of suggestions as to treatment.

REFERENCES.

- [1] ALIBERT. "Monographie des Dermatoses," 2nd ed., 1835, p. 801.
- [2] BLAND-SUTTON. "Tumours, Innocent and Malignant," 5th ed., p. 125.
- [3] BIRCHER. *Arch. f. Derm. u. Syph.*, Leipz., 1897, xli, p. 195.
- [4] BRESOVSKY. *Pest. Med.-Chir. Presse*, 1908, xliv, p. 977.
- [5] DORE. *Proc. Roy. Soc. Med.* 1911-12, v (Derm. Sect.), p. 118.
- [6] GOUGEROT et BLUM. *Ann. des mal. vénér.*, Par., 1914, x, p. 518.
- [7] HALLOPEAU et LASNIEB. *Bull. Soc. franç. de derm. et de syph.*, Par., 1907, xviii, p. 106.
- [8] JOSEPH. *Berl. klin. Wochenschr.*, 1882, xxix, p. 163.
- [9] WHITFIELD. *Proc. Roy. Soc. Med.*, 1911-12, v (Derm. Sect.), p. 119.

DISCUSSION.

Dr. POYNTON asked whether many of these cases died of melanotic sarcoma? He believed such to be the case. He did not think anything could be done for such cases, they were too extensive. A member sent him a case with molluscous tumours, as well as a very extensive condition of this kind. Nearly all the child was covered with hair.

The PRESIDENT said the case raised two important questions. One concerned treatment. There was often a curious distribution about the face which seemed to follow no nerve route nor anatomical distribution. An illustration of this condition appeared in several text-books. It covered a good part of the forehead and cheek. "Barnum's man" had the condition over the whole of the face. In one of the cases he found great improvement follow freezing with solid carbon dioxide. The child had a nævus round the cheek, and he had excised a good part of it, and then grafted, but it was still disfiguring. Then the freezing was started and continued in the out-patients' department for two years, and in the end there was very great improvement; the hair came away, and the skin was very much paler. But it took a great deal of patient treatment. There was no scar remaining, and the skin was nice and soft. The other question was as to the reality of maternal impressions in these cases. He firmly believed there was something in them. Some years ago Mr. B. Pitts showed a child with much the same distribution of nævus; it was right down the middle of the child's

back. The story was that the mother, during the early part of the pregnancy, was sitting in a room, when a monkey jumped from the shelf on to the middle of her back. It was important to note that if the mother took no notice of such events when pregnant there was nothing abnormal about the child, but when it was clear that the mother had gone about telling people that she expected her child to be marked in a certain way and it was so marked surely there was something in it. But the subject could not now be discussed, as there were such wide differences of opinion on it.

Splenomegaly (? Splenic Anæmia of Infancy) improved by Antisymphilitic Treatment.

By BERNARD MYERS, M.D.

G. C., AGED 1 year 11 months, was admitted to the Royal Waterloo Hospital last June (then aged 18 months) for diarrhoea and wasting. His weight at that time was 9 lb. 8 oz. His father died two years ago as the result of an accident, and his mother died of phthisis when the patient was a year old. At the age of 4 months patient had measles.

When first examined in June he presented a very wasted appearance all over, his subcutaneous fat and muscles having suffered severely in this respect. His abdomen was distended. The child was listless, anæmic, of an earthy complexion, and with a sunken fontanelle. Some signs of rickets were present. There were about six motions in the twenty-four hours. The temperature and pulse were normal on admission, while the respiratory rate was slightly raised. The spleen was enlarged, moderately firm, and extended to just below the level of the umbilicus. The edge of the liver was felt $1\frac{1}{2}$ in. below the costal margin. No albumin was discovered in the urine, which was acid and of specific gravity 1020. The Wassermann and von Pirquet reactions were both positive.

The blood count on June 17 was:—

Red blood corpuscles	...	...	...	3,040,000 per cubic millimetre.
Hæmoglobin	...	...	...	44·0 per cent.
Leucocytes	...	...	...	14,000 per cubic millimetre.
Polynuclears	...	...	...	35·8 per cent.
Lymphocytes	...	...	...	54·8 "
Large mononuclears	...	...	...	6·0 "
Transitionals	...	...	...	1·4 "
Myelocytes	...	...	...	2·0 "
				100·0 "
Normoblasts	...	...	...	3·0 "
Megaloblasts	...	...	...	1·2 "

16 Myers: *Splenomegaly improved by Antisymphilitic Treatment*

A provisional diagnosis of splenic anæmia of infancy was made. Hydrarg. c̄ creta, $\frac{1}{2}$ gr. t.d.s., together with a bismuth mixture, were given. Some slight improvement only being noticeable, this treatment was stopped in favour of mercurial inunction over the region of the spleen. The diet consisted of milk in various forms, arrowroot, meat-juice, and small quantities of brandy. Distinct and steady improvement followed the inunctions. The diarrhoea gradually ceased, his appearance became healthier, and his face, body and limbs filled out. The spleen was noticeably smaller week by week. On September 17 he was put on syrup. ferri iodide, 10 minims t.d.s. On October 9 a blood count showed:—

Red blood corpuscles	...	...	...	5,640,000 per cubic millimetre.
Hæmoglobin	...	...	...	90.0 per cent.
Leucocytes	...	...	...	10,000 per cubic millimetre.
Polynuclears	...	...	...	30.2 per cent.
Lymphocytes	...	...	...	53.6 „
Large mononuclears	...	...	...	12.0 „
Transitionals	...	...	...	4.2 „
				100.0 „

Red blood corpuscles appear normal.

During his first two months in hospital his temperature was raised on and off. His present weight is 1 st. 4 lb. 12 oz. He looks well and is now a cheerful, intelligent child, and takes ordinary diet. Both spleen and liver are still a little enlarged. He has suffered from catarrh of the lungs, but this is now much better. On November 20 his blood was again examined by Dr. Leathem and his report showed:—

Red blood corpuscles	...	...	...	6,130,000 per cubic millimetre.
Hæmoglobin	...	...	...	100.0 per cent.
Leucocytes	...	...	...	16,600 per cubic millimetre.
Polynuclears	...	...	...	57.4 per cent.
Lymphocytes	...	...	...	19.6 „
Large mononuclears	...	...	...	16.8 „
Transitionals	...	...	...	3.0 „
Eosinophiles	...	...	...	3.2 „
				100.0 „
Normoblasts	...	...	...	1.0 „

Red blood corpuscles appear normal in size and shape. Wassermann reaction positive, although not strongly marked.

I wish to thank Dr. Sunderland for having kindly given me a free hand with this child as regards examination and treatment.

DISCUSSION.

Dr. E. CAUTLEY said there were several questions which could be answered in different ways. His view was that there were cases of anæmia infantum occurring in syphilitic babies. Although fairly often there was a history of syphilis, in the majority of instances there was no history or evidence of that disease. In twenty-two cases investigated by Morse there was evidence of syphilis in only two. In his own cases, congenital syphilis had been extremely rare. Much the same remarks applied to the association of rickets with splenomegaly. Rickets occurred in children so commonly, that it could not be attributed as a cause of the splenic anæmia, which frequently occurred without any evidence of rickets. Possibly both originated from defective alimentation. He thought this case must be assumed to be one of splenic anæmia or pseudo-leukæmia, sometimes called von Jaksch's disease, occurring in a syphilitic child. The blood counts were exactly what were found in that condition. Improvement under treatment was also usual. His experience was that syphilis rarely caused great enlargement of the spleen. If there was great enlargement, it occurred in very early life and the liver was also large; in fact, one found visceral syphilis, and the child soon died.

Dr. POYNTON asked whether Dr. Cautley considered that the splenic anæmia of von Jaksch was a definite disease? He expected the spleen to be as large in some syphilitic cases as in von Jaksch's disease. One of the worst cases he had seen—it was published by Dr. Voelcker in the Medical Society's *Transactions*—was cured by the use of antisyphilitic remedies. He did not see why one should not regard congenital syphilis as one of the causes of von Jaksch's anæmia. He believed that the day of classifying these diseases by blood counts had gone by, and that the whole clinical picture and history was of more importance.

Case of Double-retained Testicle in which the Left Testicle was Transplanted to the Right Side of the Scrotum and the Right Testicle to the Left Side.

By PHILIP TURNER, M.S.

W. T., AGED 12 years, was admitted to hospital on May 17 for double inguinal hernia with imperfectly descended testicles. Both testicles, which appeared to be ill-developed, could be palpated in the inguinal canals; they had never descended below the external abdominal rings. The following operation was performed: The right sac and spermatic cord were exposed by a small incision through the external

oblique just above the internal abdominal ring. The hernial sac was separated from the vas and veins as far as the internal ring, and there ligatured. By traction on the distal part of the sac the testicle was drawn through the small incision in the external oblique. The sac was then ligatured immediately above the tunica vaginalis and removed. The remains of the gubernaculum were then transfixed, ligatured and divided, the ends of the suture being left long. The testicle, enclosed in the tunica vaginalis, was now, except for its connexion with the spermatic cord, quite free. An incision about an inch long was then made over the front of the left side of the scrotum. The free ends of the ligature transfixing the gubernaculum were then seized with Spencer Wells's forceps, which were then introduced through the incision in the external oblique, pushed along the inguinal canal, through the external ring into the right side of the scrotum. The ends of the forceps were then made to impinge against the scrotal septum. A small incision was now made on the forceps through the wound in the left side of the scrotum. The forceps carrying the ligature were pushed through to the left side and the ends of the ligature secured. The forceps were then withdrawn, and by pulling in the ligature the right testicle was drawn along the track made by the forceps along the inguinal canal, through the scrotal septum to the left side of the scrotum. Both wounds were then closed.

The patient was readmitted two months later, and the left testicle was then transplanted to the right side of the scrotum by a similar operation.

No sutures are necessary for the fixation of the testicle in its new position, the contraction of the opening in the septum preventing its return and exercising a gentle continuous traction which is absent in the ordinary method of orchidopexy.

Double Undescended Testicle ; Right Testicle Transplanted to the Left Side of the Scrotum.

By PHILIP TURNER, M.S.

J. T., AGED 14 years, was admitted to hospital on April 20, 1914, for double undescended testicle with inguinal hernia. Both testicles could be felt in the inguinal canal, and neither had ever descended below the external abdominal ring. Two days after admission the

right testicle was transplanted through the septum of the scrotum to the left side, by the method described in the preceding case. The testicle, which is now of fair size, has never shown any tendency to return to its former position, and now hangs freely and easily in the scrotum. It is proposed shortly to repeat this operation on the left testicle, which can at present be palpated in the inguinal canal.

I have shown these two cases in order to bring to the notice of the Section this method of treating an imperfectly descended testicle by transplanting it to the opposite side of the scrotum. The treatment of these cases is always difficult, and the results of the ordinary method of orchidopexy, in which the undescended organ is transplanted to the corresponding side of the scrotum and fixed there by sutures, will generally be admitted to be very unsatisfactory. Generally the testicle either atrophies, or when the sutures have been absorbed or cut through, returns to its original position. Indeed, many surgeons, when the deformity is unilateral, excise the testicle rather than attempt to preserve an organ the function of which is probably impaired. However, this can scarcely be considered when the deformity is bilateral, and hence in these cases the testicle is sometimes pushed up into the abdominal cavity. The latter proceeding can scarcely be regarded as desirable, and even when the deformity is unilateral conservative treatment, if it can be effectively carried out, is preferable to excision. Most men would prefer to have both testicles in the scrotum, even if one is small and ill-developed.

When only one testicle is undescended the corresponding side of the scrotum will be very poorly developed; the opposite side, which contains a normal testicle, will be well developed, and is far better able to enclose a second testicle than the poorly developed side which has never received the undescended organ. In these cases, after removing the hernial sac, I transplant the retained testicle through the septum of the scrotum to the well-developed side by the method which I have indicated in these notes. When the deformity is bilateral I repeat the operation for the opposite testicle after a period of two or three months.

Though an undescended testicle is able to produce the internal secretion necessary for the development of secondary male sexual characters, there is no doubt that in the majority of cases it is functionless as regards the formation of spermatozoa. This is by no means always the case, and it is still an open question whether such an organ, if successfully transplanted to the scrotum, may not undergo a normal

development, especially if the operation is undertaken before puberty. In several of my cases the transplanted organ certainly has increased in size—for instance, in one of the testicles of the patient W. T. I cannot help thinking that one of the reasons for atrophy so frequently occurring after the ordinary operation of orchidopexy is the rough handling which the testicle itself receives. This, and the fact that sutures pass through it, must produce a good deal of inflammation. Another drawback to the ordinary method of fixation is the absence of any long-continued force tending to keep the organ in its new position. The action of the sutures, however passed and secured, can only be temporary. The division of the vessels of the spermatic cord, which is nearly always necessary, must also greatly increase the tendency to atrophy.

The advantages of transplantation to the opposite side of the scrotum in the way I have indicated are as follows:—

- (1) The testicle is transplanted to the well-developed side of the scrotum, where there is much better accommodation for it than on the ill-developed side.

- (2) It is usually possible to effect the transplantation without dividing the vessels of the cord.

- (3) Sutures to fix the testicle in its new position are unnecessary, and the organ itself is not damaged during the operation.

- (4) When the testicle has been drawn through the septum in the scrotum the small opening contracts, and hence the weight of the scrotum acting through the septum exerts a continuous slight force tending to keep the testicle in its new position.

- (5) The operation is carried out without dividing the external abdominal ring and with the least possible damage to normal tissues.

As regards results, there is no doubt that the transplanted testicle remains in the scrotum, and, as already pointed out, in some cases there appears to have been some development.

Case of Cleido-cranio-dysostosis in which the Removal of the Outer Part of the Imperfect Right Clavicle relieved Severe Symptoms from Pressure on the Brachial Plexus.

By F. J. POYNTON, M.D., and H. MORRISTON DAVIES, F.R.C.S.

THIS patient, a girl, aged 20 years, was reported originally by Dr. Spriggs in the *Lancet*.¹

In December, 1913, she was shown by Dr. Poynton at the Clinical Section for an opinion as to the best method of treatment of severe symptoms pointing to pressure on the right brachial plexus. A description of the patient's appearance and disabilities will be found in both the reports referred to.

Her work as a dressmaker had been interfered with by severe shooting pains down the inner side of the arm and over the front of the chest. There was marked loss of power in the right hand, and much circulatory disturbance. When the shoulder was depressed the right pulse was diminished in volume, a sign which assisted in the exclusion of syringomyelia, a condition which has been described in association with this form of dysostosis.

Mr. Davies removed the outer fragment of the clavicle, and when the patient left the hospital there was already improvement. She has been completely free of the severe neuralgic pains, her hand has recovered power, and she has resumed her occupation. The only complaint now is of a dull ache in both shoulders, brought on by the long hours during which she sits in a position sewing over her work that tends to make the shoulders "over-stoop." This is relieved by sitting up with the shoulders braced back, and is of an entirely different nature to the former trouble, which was caused by the inner end of the outer fragment of the right clavicle pressing back on the nerves.

¹ *Lancet*, 1907, ii, p. 1599.

Case of Pseudo-rachitic Achondroplasia.

By FREDERICK LANGMEAD, M.D.

E. W., FEMALE, aged 6 months, was first seen at Great Ormond Street Hospital when aged 9 weeks. Many characteristic signs of rickets were present—viz., lateral grooving of the chest, Harrison's sulcus, beading of the ribs, everted costal margin, prominent abdomen, cat back, enlargement of epiphyses, curving of the tibiæ, and some bossing of the head; in fact, signs such that if occurring in an older child, a diagnosis of rickets would have been arrived at without hesitation. There is, however, considerable limitation in the mobility of the joints, the opposite to what obtains in rickets. The legs were disproportionately short compared with the body, and the fingertips, with arms extended, reached only to just below the crest of the ilium. On this account the provisional diagnosis of achondroplasia had been made, although the head and face have not the characteristic appearance of it, nor is there anything characteristic about the hands.

The case is shown because it so nearly fits the old term "fœtal rickets." Many multiple nævi were present which have been treated. During observation the child has had broncho-pneumonia.

DISCUSSION.

The PRESIDENT said he did not know whether Dr. Langmead wished to adhere to the name achondroplasia. He (the speaker) did not think one would apply that name to it at the present moment. Though the limbs were short, there was no disproportion between the length of the humerus and femur and the bones below the elbow and knee respectively.

Dr. G. A. SUTHERLAND agreed with the President that the child was at present suffering from rickets, not from achondroplasia at all. Dr. Langmead saw the child at the age of 2 weeks, and it then had some sign of rickets; but members naturally could not express an opinion on the condition of the child at that age; only on what the features of the case were now.

Dr. LANGMEAD replied that he would have been glad to hear what was the earliest age at which rickets could be diagnosed. If he were told that it could be well developed at the age of 9 weeks, he could not agree. There was no doubt that a form of achondroplasia existed, described as the pseudo-rachitic type, which closely simulated rickets. He adhered to his suggested diagnosis as being the most probable one.

Seasonal Enlargement of the Parotid Glands.

By PHILIP TURNER, M.S.

J. V., AGED 13 years, has an enlargement of both parotid glands. He has been an inmate of the East London Industrial School, Lewisham, for the past three and a half years. Dr. Farmer, the Medical Officer, states that both parotid glands during the time he has had him under observation have enlarged and become painful and tender every autumn and spring. They remain enlarged for some weeks and then gradually subside, but never quite reach the normal size. There was slight pain on opening the mouth. The other salivary glands are not affected. The only other abnormality that has been noticed is that the boy is unduly sensitive to cold. The boy himself states that the enlargement of the glands has occurred twice yearly for nine years. The condition had been observed by Dr. Farmer to occur for three years.

DISCUSSION.

Mr. TURNER added that he did not see the child until it attended that day; it was sent by a colleague. He had never seen an identical case.

Dr. C. O. HAWTHORNE asked whether the boy complained of thirst or dryness of the mouth. Cases of recurring enlargement of the parotid glands with dryness of the mouth had been recorded by the late Sir Jonathan Hutchinson, who was much interested in the condition; the records are to be found in his "Archives of Surgery."

Dr. G. A. SUTHERLAND said the seasonal enlargement of the glands was a striking feature. The President had had to deal with so-called Mikulicz's disease; was there anything in the histories of cases of the latter disease suggesting periodical enlargement of the gland?

The PRESIDENT and Mr. TURNER replied to Dr. Sutherland's question in the negative.

Case of Acholuric Jaundice.

By C. O. HAWTHORNE, M.D.

K. B., FEMALE, aged 1 year 3 months. First-born child; said to have been jaundiced since soon after birth. No family history can yet be obtained. Jaundice, considerable enlargement of spleen, some enlargement of liver, no bile in urine, stools normal, blood (Dr. Perkins) gives 14,500 white cells (polymorphs 44·8, small lymphocytes 47·2, large mononuclears 6·8), otherwise not noteworthy; blood serum contains bile pigment.

Case of Paramyoclonus Multiplex.

By C. O. HAWTHORNE, M.D.

Boy, aged 6 years. Said to have been "jerky" since birth, but much worse lately. There are frequent quick, clonic muscular contractions, most marked in the abdominal muscles, but seen also in the shoulders, upper arms, thighs, and cremaster muscles; the facial muscles are affected in some measure. The contractions are bilateral in distribution, but corresponding muscles on the two sides are by no means always affected at one and the same moment.

No family history of rheumatism or chorea or epilepsy.

Section for the Study of Disease in Children.

December 11, 1914.

Mr. T. H. KELLOCK, President of the Section, in the Chair.

? Aortic Disease.

By F. J. POYNTON, M.D.

THE interest of this case lies in the entire absence of any history of heart disease or cause for heart disease except tonsillitis, and in the exact interpretation of the physical signs.

G. S. M., aged 5 years. Sent up to hospital by school medical officer for heart disease. For two years the mother has noticed that the child soon gets tired and breathless on exertion. No history of rheumatism in child or parents. No fever. Tonsils very large and almost meeting. Pulse somewhat irregular, 84, and *strikingly small in volume*. Heart apex $\frac{1}{2}$ in. int. to V.N.L., fourth space. No apparent enlargement, and the impulse not forcible. Apex: First sound short, and systolic murmur. Aortic cartilage: Rasping systolic murmur conducted upward and outward. No thrill over its maximum. This murmur, traced towards the apex, gets fainter, and then the apical murmur is heard increasing in intensity to the apex. It would seem that these were two different systolic murmurs. The basal murmur can be heard at the pulmonary base, but is fainter there than in the aortic region.

The child, in other respects, does not seem to have any signs of illness. The question arises as to the interpretation of the basal murmur. Is it due to some chronic aortic endocarditis producing slight stenosis without aortic regurgitation, the result of an infection from the tonsils, is it of no organic significance, or is it congenital?

DISCUSSION.

Dr. POYNTON added that a number of opinions had been expressed about this case; he felt he ought to give his also. He regarded it as a slight mitral regurgitation with aortic stenosis.

Dr. ROBERT HUTCHISON said it was a difficult case to be sure about, but he shared Dr. Poynton's view. He thought there was a presystolic murmur at the apex, as well as a systolic. If others agreed as to that, he thought it would constitute strong evidence in favour of the lesion being acquired. The breathlessness and the large tonsils pointed in the same direction. There had probably been infection through the tonsils, and it seemed to be an acquired lesion, the result of endocarditis. He did not know whether to call it rheumatic or not.

Dr. G. A. SUTHERLAND said that all basal murmurs in children were difficult to decide upon as to the exact site of origin, especially as, at the clinical meetings, there were only limited opportunities for examination. There was no evidence here of change in the size of the heart, nor had any symptoms been referred to. With regard to the question of the presence of a presystolic murmur, he would like to hear from Dr. Hutchison whether he found such a murmur a common incident in a child aged 5 years. He (the speaker) thought that, in this patient, there was a basic systolic murmur of little importance.

Nine Patches of Morphœa in a Child.

By J. L. BUNCH, M.D.

THE patient, a girl, aged 11 years, developed the first lesion a few weeks ago, just below the left iliac crest. It showed itself as a dense, yellowish-white small patch, with no suspicion of redness or coloured border, and it has retained these characteristics while spreading to its present size of $2\frac{1}{4}$ in. by $1\frac{1}{2}$ in. The outline is sharp, and, to the touch, the skin is distinctly harder than the healthy skin surrounding it. Since the appearance of this patch eight other similar, but smaller, lesions have appeared on the chest, back, and shoulders. The face is free. The sweat glands do not appear to function over the area of these lesions. None of the lesions show any sign of coalescing. The number, distribution, small size, and rapidity of development of the lesions seem to bring the case within the category of the rare disease morphœa guttata, or white-spot disease. There is no evidence of peripheral neuritis or ganglionic lesion.

Generalised Ichthyosis.

By J. L. BUNCH, M.D.

THE disease has been present since birth, and the child is now aged 8 years. The extensor surfaces are most markedly affected, but the disease also involves the flexor aspects and the face to a less extent. The epidermis is thickened and pigmented, the surface is covered with a coarse scaliness, and there is pronounced follicular keratosis. The skin is dry, harsh, and rough, is wanting in elasticity, and the natural lines of the skin are exaggerated. The dirty-greyish appearance of the skin cannot be removed by any external applications. Subjective symptoms are practically absent.

DISCUSSION.

Dr. J. L. BUNCH said these were examples of scleroderma—one localised, one diffuse—and they differed clinically as much as could well be. Dr. Goffe told him he had had similar cases of generalised ichthyosis in hospital which were admitted there for scarlet fever, and in which as a result of the usual peeling after scarlatina the symptoms had disappeared, at least temporarily. The second case seemed to be a very rare disease. It seemed to correspond with the description by American dermatologists under the name "white-spot disease." Only a few cases of this disease seemed to have been recorded.

Dr. E. L. GOFFE said the cases referred to by Dr. Bunch were two members of the same family, who were admitted for scarlet fever. They had, on admission, the exact appearance of Dr. Bunch's case of generalised ichthyosis, together with a bright punctiform erythema, sore throat, and high temperature. They went through the process of peeling all over the body, including the hands and feet. The condition of the skin improved during the early desquamating stage of scarlet fever, but towards the end of their stay in hospital—about seven weeks—the ichthyotic appearance began to return.

Dr. POYNTON said that the second case was so rare that it would be interesting to learn what had happened to the other cases of "white-spot disease."

Dr. THURSFIELD asked whether there was any relation between cases of this kind, in which there was a definite thickening of the skin with, apparently, a tendency to inflammatory reaction surrounding the white patches, and the cases of loss of pigment which one saw in children from time to time—a simple leucoderma, without inflammatory thickening. Was anything known of the pathology of either condition?

28 Sutherland: *Myatonia Congenita with Dilatation of Colon*

Dr. BUNCH replied that the pathology of morphœa and vitiligo was not accurately known. The usual view was that morphœa was due to a ganglionic condition, and ichthyosis was perhaps due to peripheral neuritis. They differed from vitiligo inasmuch as the skin was hard in sclerodermia, whereas it was not changed in vitiligo in respect to textural structure. In one or more of the American cases the white spots had later developed into typical morphœa lesions, with the usual induration and clinical appearances.

Case of *Myatonia Congenita with Dilatation of Colon.*

By G. A. SUTHERLAND, M.D.

A. C., MALE, aged 2 years.

(1) Was admitted because of an abdominal swelling; the abdomen had been noticed to be very large. Bowels usually constipated; recently motions loose, scanty, offensive. A large swelling occupied the right side of the abdomen and extended into the iliac region on the left side; apparently fœcal. Anal orifice very small and tight. X-ray shows great dilatation of colon. Abdominal mass removed by enemata, &c., and sphincter ani forcibly dilated. Great improvement as regards action of the bowels and size of abdomen.

(2) Child can sit up, but cannot stand or pull himself into erect posture. Can stand with support. Muscles small and markedly hypotonic. Joints very flaccid. Knee-jerks not elicited. No marked rickets.

(3) A peculiarly apathetic, placid infant. Never talks, but babbles a little to himself, and smiles. ? State of mental backwardness.

DISCUSSION.

Dr. SUTHERLAND added that the condition of the abdomen made him think of Hirschsprung's disease. After Mr. Murray had dilated the sphincter the bowels began to act naturally, though they had never previously done so. That continued until a fortnight ago, when constipation came on. He believed that in Hirschsprung's disease usually there was no cause ascertained for obstruction, and he wondered whether the stretching of the sphincter in this case, and the result which followed, showed that the fault was with the sphincter. He invited views on that point.

Dr. E. CAUTLEY asked for a clearer description of the nature of the abdominal tumour. He asked, because, a fortnight ago, he had a baby under

care, aged 14 months, with abdominal tumour and great distension of the abdomen. The tumour was on the right side and somewhat superficial, but the general distension made it difficult to be certain of its extent and character. There was a history of constipation, and, as the result of treatment by enemata, some semi-solid fæces were passed. When he saw the child a few days later the tumour was more obvious, and he thought that was because of the reduction of the flatulent distension. It extended from the right costal margin to the pubes, but one could get the finger between it and the liver. He remarked to his resident medical officer that it felt like an enlarged spleen on the wrong side, but it extended into the loin like a renal tumour. As it was very hard he left a request for a surgeon to see the child, with the idea of having an exploration done, as it might possibly be sarcoma of the kidney. His first diagnosis was a tuberculous gland, with matting of intestines. He ordered $\frac{1}{2}$ gr. of hydrarg. cum cretâ night and morning, and sulpho-carbolate of soda for the distension, and, four days later, the tumour had disappeared. Yet the tumour had been so hard that he could not indent it. He had never felt such a hard fæcal tumour in a child so young, nor a sarcoma of the kidney of such a firm consistency. The rapid variations in size indicated fæcal accumulation, but there were no excessive stools during its disappearance, and no scybala were present.

The PRESIDENT (Mr. T. H. Kellock) asked what was the nature of the stricture of the anus; whether it was congenital, because the rest of the child's muscles were so flabby that one could hardly imagine the sphincter alone was in a state of clonic contraction. The musculature of the rectum was often at fault in a case of congenital malformation at the anus.

Dr. LEONARD GUTHRIE asked why Dr. Sutherland described the case as myatonia congenita, and whether he referred it to the class of cases first described by Oppenheimer, and since recognised by Batten and others as cases of congenital muscular dystrophy. There was little evidence of that disease in this case; there was simply considerable myatonia, not more than met with in certain cases of rickets, in which the osseous changes were slight.

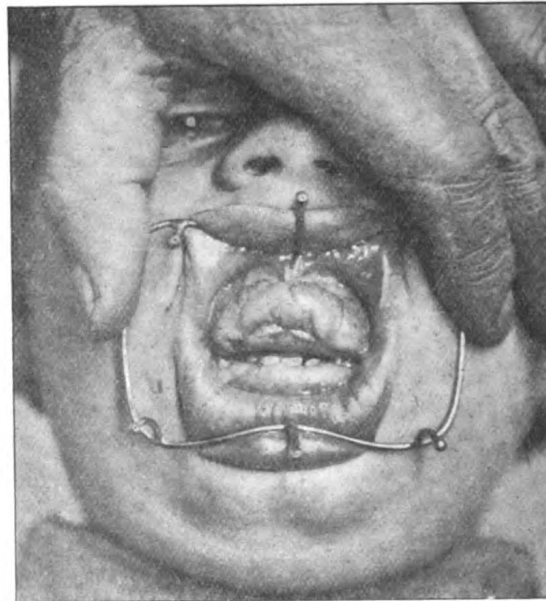
Dr. SUTHERLAND replied that if it was merely a case of constipation it merited the name of uncommon constipation; it was not the kind ordinarily met with in a child. Dr. Cautley had asked him how he knew the tumour was fæcal. His own note said there was a large, soft, semi-solid feeling mass in the situation indicated, not tender, very soft on pressure, and pitting markedly; it could be put into any shape—i.e., it felt like a mass of clay, and the outline was altered by manipulation but soon recovered its original shape. At the time he thought there was little doubt that it was fæcal. The case described by Dr. Cautley was a very puzzling one, and he could not throw any light upon the disappearance of such a tumour; it could not have been a fæcal tumour. In answer to the President, there was atony in all the muscles of the extremities, but he did not see why, despite this, the sphincter ani should not be in

a state of spasmodic contraction. It had a very special nerve supply, a branch of the long pudic, and it was not uncommon, amongst other congenital lesions, to find a considerable amount of sphincter spasm in young infants. He had suggested the possibility that the contraction of the sphincter might have had something to do with the dilatation of the colon above. If Dr. Guthrie, with his knowledge of myatonia congenita of Oppenheimer, considered it was not an example of that disease, he was content to accept the statement. He put that title to the case rather than that of rickety hypotonicity, for two reasons: first, the condition of hypotonicity was out of proportion to the other signs of rickets about this child, and he felt sceptical about the diagnosis of a general disease such as rickets, in which one class of symptoms was so very preponderant, while all the others were absent; secondly, there was the absence of the knee-jerk, a very unusual feature in a child of this age.

Hypertrophy of the Gums.

By ROBERT HUTCHISON, M.D.

J. C., AGED 5 years, has had enlarged gums all his life, which now make it impossible for him to shut his mouth properly. The gums are greatly hypertrophied, the teeth being almost buried in them. Pus can



Hypertrophy of the gums.

be squeezed out from around some of the teeth. The boy seems otherwise in good health.

Dr. HUTCHISON added that he had never seen a case of the kind before, but dental surgeons occasionally saw them; and he wished to elicit the experience of any who had had a case of the kind operated upon. The skiagram showed the bones to be quite unaffected.

DISCUSSION.

The PRESIDENT asked whether there was here any connexion between the bad condition of the teeth and the hypertrophy and suppuration of the gums. If so, the first step in treatment seemed to be to get the stumps of the teeth removed, and so get rid of the sepsis about them. It would be interesting to take out some of the stumps, say on one side of the lower jaw, to see if any improvement followed. It could then be seen whether it was a local condition caused by the condition of the teeth.

Dr. F. PARKES WEBER drew attention to the scarcity in medical literature of records of cases of extreme hypertrophy of the gums. Hypertrophy of gums occurred in the remarkable family series of cases of molluscum fibrosum in children described by John Murray in 1873,¹ and afterwards by A. Whitfield and A. H. Robinson in 1903.² In that series the condition of the gums appeared to be primarily due to the molluscous fibromatous disease. Secondary inflammatory changes would doubtless occur in hypertrophy of gums (just as a kind of chronic superficial glossitis was commonly present in many cases of congenital "fissured tongue"—so-called "scrotal tongue"—and probably due to the retention of debris of food in the clefts).

Dr. THURSFIELD said that four years ago he had a similar case, which he handed over to his dental colleague, Mr. James, who extracted the teeth and pared the gums. That gentleman's opinion was, in his recollection, that such hypertrophies were all fibrotic, the result of an inflammatory lesion in the gums. He did not think the term "congenital" was legitimately applied to the condition at all. He had found in the literature that hardly any cases were recorded below the age of 4 or 5 years. If the condition were congenital, one would have expected records of cases before that age. Unless there was a very complete history in this case of existence from birth, he would incline to believe that the hypertrophy was inflammatory.

Dr. HUTCHISON replied that the mother's account left little doubt that the hypertrophy of the gums preceded the appearance of teeth; the latter had never been able to force themselves beyond the gum surface; they were

¹ *Med.-Chir. Trans.*, Lond., 1873, lvi, p. 235.

² *Ibid.*, 1903, lxxxvi, p. 293.

somewhat carious, and probably would come out. If this condition were the result of sepsis of the gum, or of pyorrhœa alveolaris, one would expect it to be commoner than was the case. His leaning was to the congenital view; that it was comparable to macroglossia, and, if it were a permissible term, one could call it gigantism of gums.

Pulsating Tumour of the Scalp.

By PHILIP TURNER, M.S.

V. B., AGED 18 years, has had for the past nine years a pulsating swelling of the scalp. This appeared shortly after a fall in which she struck her head against a concrete floor. She was not unconscious after the fall and there were no symptoms of concussion and no open wound of the scalp. The tumour has caused no symptoms, but has increased slightly in size. Three or four months ago the skin over the swelling ulcerated and became very septic, but there was no hæmorrhage; but as the result of treatment the ulceration soon began to heal. There is now a soft, pulsating swelling occupying the occipital region and extending nearly to the vertex. An X-ray examination has been made and this shows no opening in the bone, though the surface appears irregular and grooved.

DISCUSSION.

Mr. TURNER added that a thrill was occasional; it was not always present. Also there was a well-marked bruit over the tumour, and the President pointed out to him that if one traced the bruit downwards, it stopped suddenly at the point where the occipital artery became superficial. The condition of the patient three months ago was very different from that now seen, and when first seen he thought it was a cystic condition, the cyst containing cerebro-spinal fluid, the result of the original injury. But with the improvement in the condition his view now was that it was cirroid aneurysm; the outline of some of the dilated vessels could be both seen and felt. The tumour seemed definitely to have appeared immediately after an injury; the mother took it to be a bump, but instead of disappearing after a time it continued to increase. There was a scab still on part of the swelling, and he intended to wait until healing had occurred, and then excise the whole tumour. He hoped that the chief blood supply came from the lower extremity, and if the big vessels in that situation were secured, the bleeding would, he hoped, be easily controlled.

The PRESIDENT said the connexion between cirroid aneurysm and injury of the scalp was interesting, because he thought it had been attributed to

injury to an artery. They were seldom found in young children, chiefly occurring in young adults. He agreed with Mr. Turner's diagnosis, and it was the commonest situation for the condition. They usually got larger, yet apparently spontaneous hæmorrhage from them was very rare. He asked why operation should be delayed because there was a patch of ulceration. It could be sterilised, and obviously something should be done at once as it was increasing. He suggested making a peripheral incision, distal from the occipital artery, turning back a flap containing this, and secure vessels from the skull side of the tumour when everted; there would then be less hæmorrhage than from trying to attack the feeding vessels first. Frequently these vessels were tied, but cessation of the bleeding had not always been brought about by that.

Dr. MILNER BURGESS said he had a similar case connected with the anterior temporal artery, following upon traumatism, and it was operated upon successfully by the late Mr. Macready.

Mr. PHILIP TURNER replied that he thought that the term "cirroid aneurysm" was rather loosely used, and that there were sometimes abnormal communications between arteries and veins.

Cerebral Embolism in Diphtheria.

By J. D. ROLLESTON, M.D.

GIRL, aged 8 years, was admitted to hospital on October 24 with severe faucial and nasal diphtheria on the third day of the disease. Large doses of antitoxin were given, and the throat became clean on October 28, but the same day the heart, hitherto normal, showed some dilatation and weakness of the first sound. The voice became nasal on October 30.

At 11.15 a.m. on November 7 she retched, the respirations became rapid, the colour cyanosed, and a convulsive movement of the right arm and loss of consciousness ensued. Double ankle clonus and double extensor response were obtained. Both abdominal reflexes were lost, but the corneal reflex, though absent on the right, was active on the left side. A cardiogram (taken by Dr. E. B. Gunson) showed premature ventricular contractions. Pulse 115. On November 8 the pulse was 160, and during short paroxysms rose to 220 and 240. Until death, which occurred on November 9 about thirty-eight hours after the ictus, there was flaccid paralysis of both upper limbs and the left lower limb, with occasional convulsive movements of both upper limbs and more or less persistent rigidity of the right lower limb. Cheyne-Stokes breathing

was well marked. The temperature, which had been subnormal since October 28, rose to 101° F. after the ictus and was 103° F. the following day.

The specimen shows embolism of the basilar artery, of the superior cerebellar arteries, and to a greater or less extent of all the arteries entering into the formation of the circle of Willis—viz., the posterior cerebral, posterior communicating, internal carotid, anterior cerebral, and middle cerebral arteries. The lesions are much more marked on the right than on the left side. An ante-mortem clot was found in the left ventricle and a small infarct in the left kidney.

DISCUSSION.

Dr. ROLLESTON said the question had arisen as to why he called it embolism, instead of thrombosis. He did so because there was a definite heart lesion, and at the autopsy there was an ante-mortem clot in the left ventricle, and an infarct in the kidney. It was an unusual case of cerebral embolism, because in all the other cases he had seen or read of following diphtheria the process had been associated with hemiplegia. This case presented all the symptoms described by Osler as associated with obstruction of the basilar artery. In this case during life the conjunctival reflex was preserved on the left side and lost on the right; and that, he thought, was because the vascular obstruction was less on the left side.

Dr. E. CAUTLEY said he thought the nature of the clotting was more that of a primary thrombosis than embolism, and he did not think the small infarct found elsewhere was necessarily due to embolus. He asked whether Dr. Rolleston could form any estimate as to the duration of the ante-mortem clot in the heart, because the notes implied that there was some cardiac failure a considerable time before the sudden thrombosis or embolism. Also, what was the probable age of the infarct found in the left kidney? If the infarct was embolic it should be of more recent origin than the clot, on the supposition that both the infarct and the clot in the basilar artery were due to portions of detached ante-mortem clot.

Dr. ROLLESTON replied that he considered the infarct in the kidney was anterior to the clot in the cerebral vessels. It was very difficult to distinguish between embolism and thrombosis. In most of the cases of hemiplegia following diphtheria¹ the post-mortem findings had shown that it was due to embolism, not thrombosis: his other reason for calling the condition embolism was that there was another embolus elsewhere. In answer to Dr. Sutherland, here again he appealed to the literature; most of the cases of cerebral embolism in diphtheria had been attributed to apical endocarditis. He had not made a section of this specimen, but to the naked eye there was nothing very definite.

¹ *Proceedings*, 1913, vi (Clin. Sect.), p. 69.

Pericarditis in Scarlet Fever.

By E. B. GUNSON, M.D.

Clinical Note.—D. R., female, aged 15 years, was admitted to the Grove Hospital, suffering from scarlet fever, on the thirtieth day of disease. She had previously had measles, chicken-pox, and whooping-cough. She had never had rheumatic fever, but had had occasional "growing pains." On admission the temperature was subnormal. The patient was pale. The pulse was regular, with a rate of about 100 per minute. The heart was not enlarged. In the mitral area there was a short, sharp first sound, followed by a loud, rough systolic murmur, conducted to the axilla. Endocarditis was diagnosed, and the patient was kept in bed. The temperature remained subnormal until the thirty-fifth day, when it rose to 101° F. Slight pyrexia persisted. On the thirty-eighth day the pulse became irregular, owing to each alternate beat being due to a premature contraction. The arrhythmia persisted for two days only. On the fortieth day pericarditis developed, accompanied by arthritis. Death occurred on the forty-fourth day.

Pathological Note.—Post mortem the parietal and visceral layers of pericardium were completely but loosely adherent by recent fibrinous exudate. When the layers were separated and the exudate was detached, numerous small subepicardial hæmorrhages were disclosed. The heart muscle was pale. The cusps of the mitral and tricuspid valves were thickened and there were some recent vegetations on the mitral valve. The left auricle presented a patch of mural endocarditis. There were a few small patches of atheroma at the commencement of the aorta.

Microscopical Appearances.—The left auricle shows thickening of the endocardium, with areas of commencing necrosis; myocarditis; organising pericardial exudate containing a number of irregularly dilated capillaries. The right auricular muscle presents a similar appearance; the endocardium is healthy. The left ventricle shows acute myocarditis of mild degree.

Pericarditis from a Case of Scarlet Fever.

By E. G. L. GOFFE, M.D.

GIRL, aged 9 years, was admitted to hospital on October 9, 1914, suffering from scarlet fever. There was a previous history of rheumatism.

Condition on admission: Well-marked punctiform erythema of trunk and limbs; fauces enlarged; cervical adenitis; choreiform movements of face, right arm, and leg; temperature 102° F.

October 26: Double pericardial rub at base; presystolic and systolic apical bruit; increased area of cardiac dullness.

October 31: Pericardial rub more marked; area of cardiac dullness increased; choreiform movements marked.

November 1: Epistaxis and difficulty in swallowing. 5 p.m.: Cyanosis, rapid breathing, restlessness.

November 2, 1.50 a.m.: Death.

Dr. J. D. ROLLESTON said pericarditis was very rare in scarlet fever, rarer than some text-books led one to imagine. In the statistics of the Metropolitan Asylums Board for the ten years 1900-1909 the percentage of cases of pericarditis was only 0.10, and in both the present cases there was a question whether scarlet fever was responsible, at all events entirely. In Dr. Goffe's case there was a history of rheumatism, and in Dr. Gunson's the "growing pains" probably meant abortive rheumatic fever. Probably more cases occurred, but were latent.

Specimen of Perforation of the Arch of the Aorta by Safety Pin Impacted in the Œsophagus.

By E. G. L. GOFFE, M.D.

C. A., FEMALE, aged 10 months. Admitted to North-Eastern Hospital, Tottenham, on February 18, 1912, certified to be suffering from scarlet fever.

History of case: No previous illness; sore throat, February 16; rash on chest, February 17.

On admission: Temperature 100° F., pulse 120, respiration 48, rash *nil*, throat *nil*, tongue furred, fretful.

As the diagnosis of scarlet fever was not confirmed on admission,



FIG. 1.

The œsophagus opened from behind.



FIG. 2.

The aorta opened from the front.

the child was sent to an isolation ward. It was seen again late the same evening, when the nurse reported that it was fretful and had vomited a little milk after each feed. At 12.30 p.m. next day

38 Goffe: *Perforation of Aorta by Safety Pin in Œsophagus*

(February 19) the child vomited after a feed of milk and brought up a quantity of blood, and died.

No definite information could be obtained from the parents, who were music-hall artistes. They had never missed the safety pin, which was one of a type used to secure the child's napkin. From the information received I came to the conclusion that the child had swallowed the pin about three weeks before death.

The specimen shows the œsophagus, larynx, and trachea, with the arch of the aorta and the large vessels arising from it, with a brass safety pin in situ, as found post mortem. The œsophagus has been opened at the back. The pin is open, with the open end downwards. Viewing the œsophagus from behind, the catch half of the pin is seen in the œsophagus: the other half, having passed through the œsophagus, point downwards and forwards, is not seen. The pin portion passes to the left of the trachea on a level with its bifurcation. The œsophagus is perforated on its anterior surface about 2 in. from its upper extremity; the pin half, having passed completely through the wall of the œsophagus, is in a cavity which goes from the gullet to the aorta. The cavity is about $\frac{1}{4}$ in. across. The walls of the cavity are thickened. Viewing the specimen from the front there will be seen a perforation in the wall of the aorta, with the point of the pin just appearing through the hole (marked with a black speck) in the interior of the artery. The aorta is perforated about $\frac{1}{2}$ in. below the origin of the left subclavian. Death was due to hæmorrhage from the aorta, owing to ulceration set up in its walls by the presence of the pin in the tissues between the aorta and gullet. The bleeding was into the œsophagus. The stomach was full of blood, one large clot. There was little blood in the upper part of the small intestines. No blood, altered or unaltered, was found in the large intestines. The heart and blood-vessels were practically empty. All the tissues were pale and bloodless.

DISCUSSION.

Mr. PHILIP TURNER said it was a remarkably interesting case. He saw a somewhat similar one sixteen years ago. A girl, aged 18 years, was admitted under Sir James Goodhart for hæmatemesis; she had had two hæmorrhages, and the diagnosis was gastric ulcer. After being in hospital twenty-four hours she had a terrific hæmatemesis and died. She gave a history of having swallowed a chicken bone three or four weeks before, but she had had no trouble from that for some time. At the post-mortem the bone was found. It had ulcerated through from the œsophagus, and had opened the aorta in the same place as the pin had in the present case—i.e., just beyond the origin of the left subclavian artery.

Dr. J. D. ROLLESTON said cases of foreign bodies in the air or food passages seldom found their way into fever hospitals. In the Asylum Board statistics for the last fifteen years (1899-1913) there were only six, which had all been certified as cases of diphtheria; three were foreign bodies in the larynx, two in the œsophagus, and one in a bronchus.

Dr. GOFFE replied that possibly one of the six cases mentioned by Dr. Rolleston was this one, as it occurred at one of the Asylums Board hospitals in 1912. In this case there was no history of a foreign body, and there were no symptoms pointing to such a condition. The child's parents were away from home at the time, and the child was being looked after by the grandmother, apparently in a casual way.

Case of Liver Abscess in an Infant.

By ERIC PRITCHARD, M.D., and C. VIOLET TURNER, M.B.

A MALE infant, aged 5 weeks, healthy at birth, jaundiced at 4 days old for nearly a fortnight. Abdomen always prominent; became much more distended five days before admission to hospital, with dilated veins, swelling of feet, legs, scrotum, and penis three days.

On admission: Temperature 97° F.; did not appear very ill. Abdomen very distended; liver enlarged to umbilicus, greatest enlargement in right flank. (Edema of abdominal wall, back, legs, scrotum, and penis.

Twenty-four hours after admission, temperature 101° F. Skin of abdomen became purple and began to slough; no vomiting; death.

Post mortem: Liver abscess size of an orange in right lobe. No other source of suppuration found; slight recent peritonitis; all other organs healthy. The pus from abscess grew *Bacillus coli* and a Gram-negative diplococcus. Culture from the heart's blood grew *Bacillus coli*.

DISCUSSION.

The PRESIDENT asked whether the pus was examined, and, if so, what was found in it. He suggested the possibility of there being streptothrix, as one found actinomycosis in unexpected places.

Dr. VIOLET TURNER, in reply, said the pus was examined, and the direct films showed *Bacillus coli* and a diplococcus; no actinomycosis was found.

Section for the Study of Disease in Children.

January 22, 1915.

Mr. T. H. KELLOCK, M.C., President of the Section, in the Chair.

Case of Congenital Syphilis.

By F. D. SANER, M.B.

S. C., AGED 9 years. The history of this case previous to admission two months ago is extremely vague. The child was apparently quite healthy until just over two years ago, when the mother sought advice on account of some pain and stiffness in the left elbow and ankle-joint. The child was treated for "arthritis." Some months later a small hard lump appeared about the centre of the forehead, which gradually enlarged and finally ulcerated. The left leg became very deformed, and for nine months before admission she was unable to walk.

No specific treatment had been given until the child was admitted to hospital on November 11, 1914. She was then extremely wasted and anæmic, did not eat or sleep. There was a large, circular, foul-smelling ulcer, with a sloughy base, in the centre of the forehead, quite half as large again as the present condition. It is now at least 2 in. in diameter and is practically circular. The eyes were almost closed from œdema of the upper lids. The liver and spleen were distinctly palpable and still are. Wassermann's reaction was positive. Since admission hyd. c̄ creta 1 gr. has been given three times a day, and an inunction of ung. hydrarg. $\frac{1}{2}$ dr. once daily. In addition, pot. iod. 5 gr. c̄ inf. gentian co. ad. 2 dr., t.d.s., has been given, and sanitas fomentations to the forehead. A hydrogen peroxide mouth-wash has been used, and the treatment has been very well borne.

The child has gained 12 lb. in weight since admission, her appetite is good, and now she plays and sleeps well.

DISCUSSION.

Mr. SANER said he would be glad of advice as to the further treatment of the child. For more than two years she had no specific treatment. During the last two months she had had mercury, both in pill form and by inunction. The Wassermann reaction was still positive. He would like advice as to whether salvarsan could safely be given.

The PRESIDENT (Mr. T. H. Kellock, M.C.) said that an interesting point was that the child was healthy until two years ago. Apparently this child, like many congenital syphilitics, showed no evidence of disease until rather late, and then many bones became affected, as it was common to find in these cases. He thought that the possibility of there being exfoliation of bone inside as well as outside the skull would rather militate against the use of salvarsan, for intracranial trouble might arise if the exfoliation of bone inside the skull were brought about too rapidly. As the child was now improving so markedly it would seem wiser to continue the present treatment and see how far the improvement would go.

Dr. F. PARKES WEBER said that cases in which the manifestations of congenital syphilis first attracted attention relatively late in a child's life were very interesting. In the present case he wished to draw attention to the large growth of the left tibia, which had occurred without the child suffering particular pain. One would have supposed that an accompaniment of such bone disease would have been great pain sufficient to keep the child awake at night. But as a matter of fact, in the most typical cases of this kind there was scarcely any pain or tenderness in the affected bones. Sometimes the disease was symmetrical in the two tibiæ, and such a case would much resemble osteitis deformans in adults. He had contributed a short note to the *British Journal of Children's Diseases* (when it was edited by Dr. Carpenter) on the condition in question, speaking of it as so-called "osteitis deformans" of congenital syphilis.¹ Some French writers had, he believed, suggested that all cases of osteitis deformans in adults were due to syphilis. That view, however, he regarded as untenable. The case of congenital syphilis to which he had referred was that of a boy who presented a most remarkable appearance, because both tibiæ were very long, the legs below his knees looked much too long and thick in comparison with his thighs and the rest of his body, having increased abnormally in length owing to the chronic inflammation. The bone disease began to show itself when the boy was aged 7 years. It was only later, when he was aged about 14 years, that the development of gummata made its syphilitic origin quite obvious to all. The prognosis in such cases was not, he believed, as bad as one would expect; he had been informed that

¹ F. P. Weber, "A Note on Congenital Syphilitic 'Osteitis Deformans,'" *Brit. Journ. Child. Dis.*, Lond., 1908, v, p. 83.

the above-mentioned boy had grown up to manhood. In Mr. Saner's case, if there were no contra-indications to salvarsan or neo-salvarsan he did not see why small doses of it should not be given intravenously, though he agreed with the President that if there were disease of bone inside the cranium one would hesitate about giving it.

Mr. SANER replied that there was no evidence of bone changes inside the skull: an X-ray examination of the skull had been made which showed destruction of the outer table of the frontal bone. There were no other symptoms of intracranial trouble.

Case of Enlarged Liver in a Boy, aged 15 Years.

By H. W. BARBER, M.D., and F. D. SANER, M.B.

C. P., AGED 15 years, was admitted to hospital on December 27, 1914, for pain in the right side, which had only been present for a few days. The boy is of average development for his age and there is no history of any previous illnesses. On examination the liver is found to be considerably enlarged; on the right side its lower border nearly reaches the iliac crest; in the mid-line its lower margin is just below the umbilicus, and it can be traced to the left costal margin at the level of the ninth costal cartilage. The spleen is not enlarged. The Wassermann reaction is positive. There is no eosinophilia.

DISCUSSION.

Dr. ROBERT HUTCHISON thought the most probable diagnosis was that it was a syphilitic liver of some kind, there was a positive Wassermann's reaction, and the child had the facies of congenital syphilis. With regard to the pathological condition of the liver, he thought it was waxy, at least partially, and might be gummatous also. He could not feel the spleen, and it did not appear to be enlarged, and none of the other viscera seemed to be affected.

Dr. PORTER PARKINSON thought that the liver being apparently the only organ affected by syphilis was not against the diagnosis that the condition was syphilitic. That disease often seemed to attack one particular organ and expend its energy upon it without spreading generally. Sometimes it picked out one bone, sometimes a gumma was present in only one organ. In a recent case a gumma was found in the heart of a child, and there was no evidence of syphilis elsewhere. Commonly the spleen was enlarged in syphilitic children, without any other organ showing change. He believed that the effect of anti-syphilitic treatment by mercury and iodide of potassium in this case would be a considerable reduction in the size of the liver.

Mr. PHILIP TURNER said he thought one of the most striking things about the case was the way in which the costal margin and the lower ribs were displaced on the right side. On looking at the child from a distance, it was obvious that there was some displacement of the costal margin. He did not remember having seen anything like that in a case of syphilitic liver before, and he would like to hear if other members had.

Postscript.—On February 9 Mr. Turner opened the abdomen and found that the liver was not enlarged and that the swelling was in the right upper renal region, being in all probability a hypernephroma. The liver itself was displaced towards the left hypochondrium.

Hæmatoma of the Lower Lid in an Infant, aged 5 Months (an Unusual Manifestation of Infantile Scurvy).

By SYDNEY STEPHENSON, C.M.

K. S., AGED 5 months, was brought to the Eye Department of the Queen's Hospital for Children, London, on January 7, 1915.

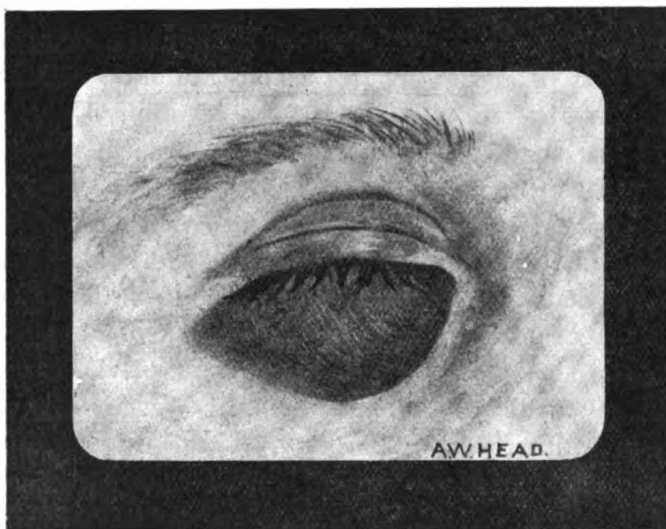
The history of the case was to the effect that the infant did well until the middle of last December, when she developed "thrush," diarrhoea and vomiting, symptoms from which she made a fair recovery in the course of about a fortnight. On January 3 a small black spot or line was noticed in the skin of the right lower eyelid. There had been no injury to the parts. No especial importance was attached to the mark. But on the following morning the eyelid was swollen and discoloured, and since then no particular change has been noticed in the condition of the parts. On January 6, the day before the infant attended the hospital, the medical practitioner, under whom the patient had been, made a puncture into the distended lower lid, resulting in the escape of what is described as "blood and matter."

As to diet, for the first two months of life the baby was on the breast, and after that Nestlé's milk was given exclusively. Since recovery from the attack of December last nothing has been given in the way of food except albumen water. No patent foods have been used in bringing up the infant.

On admission, the right eye was completely closed by the pressure of the lower lid, which was enormously distended with blood. The swollen parts were almost chocolate-brown in colour. A recent puncture, exuding a little blood, was present at about the junction of the outer

third with the inner two-thirds of the lower lid. The upper eyelid was not swollen, and exhibited merely a few insignificant patches of cutaneous ecchymosis. The eyeball was not protruded. The cornea was clear. Temperature, 99° F. The child had some colour in her cheeks, and although somewhat wasted (weight, 11 lb. 6 oz.) yet looked tolerably well. No tenderness on handling. No swellings about legs or arms. There were no teeth, and the gums were in excellent condition.

A provisional diagnosis of infantile scurvy was made, and the child admitted as an in-patient. She was placed on equal parts of "raw" milk and water. One teaspoonful of raw meat juice was given every



Hæmatoma of the lower lid.

three hours, alternating with a similar quantity of orange juice. The affected eyelid was treated with compresses of hydrogen peroxide.

The improvement in the state of the eyelid was striking. Already when the picture was made, two days after admission, the condition was less marked, and the puncture mentioned above was healed. A couple of days later the baby could open the eye somewhat, and seven days after admission the eye could be widely opened, and the lower lid, although blood-stained like a "black-eye," was not swollen. In fact, in the course of a single week under anti-scorbutic diet changes had taken place that in ordinary cases would have been spread over three weeks or a month.

The infant's general health, unfortunately, did not improve *pari passu* with the local condition. It is true that during the week's stay in hospital the child gained 3 oz. in weight. But on January 8, the day after admission, the pulse was 172 per minute, and the temperature 102·8° F. Since then the temperature did not fall below 101·4° F., and was generally between 103° F. and 104° F., without any definite cause having been found to account for it. The stools, which have numbered from three to seven a day, were found to contain blood on January 12 and 13. On January 14 the urine contained a trace of blood.

On January 16 signs of meningitis developed, and the child died on January 18.

Comments.—The foregoing, I think, can only be regarded as an instance of infantile scurvy, with unusual ocular manifestations. Apart from the difficulty of accounting for a non-traumatic hæmatoma in so young a child on any other view, there is a certain amount of evidence in support of the suggestion: (1) The extraordinarily rapid subsidence of the effused blood under an anti-scorbutic diet, and (2) the discovery of blood in (a) the stools and (b) the urine. On the other hand, the classic signs of infantile scurvy were conspicuous by their absence. The case is further peculiar in that the ocular manifestations preceded any other signs of scorbutus. For example, melæna did not develop until after nine days and blood in the urine until eleven days after the eye signs. The case recalls one reported by W. T. Holmes Spicer¹ in an infant of 7 months, who was brought because the right upper eyelid was tensely swollen and blood-stained. There were no other manifestations of infantile scurvy. Rapid improvement took place when once the child was placed on suitable diet, together with cod-liver oil. A case analogous with my own has been placed on record by K. Steindorff² in a child aged 7 months, whose left upper eyelid was greatly distended by blood and of a bluish-red colour. Lesions of the gums were present. The child's body was exquisitely tender when touched. Traces of blood were found in the urine. One small conjunctival ecchymosis was present, but there were no retinal changes.

¹ *Trans. Ophthalm. Soc. U.K.*, 1892, xii, p. 33.

² *Zeitschr. f. Augenheilk.*, 1911, xxv, p. 180.

DISCUSSION.

Mr. STEPHENSON exhibited a water-colour drawing of the condition of the lower lid, made two days after admission to hospital, and a photograph of the lids. He said that though only two days elapsed between the two representations, there was a clear indication of the progress made in absorption of the blood under the anti-scorbutic diet given.

The PRESIDENT asked whether a post-mortem examination was made.

Dr. F. PARKES WEBER thought the facts were suggestive of this being a case of pneumococcal sepsis, if pneumococci had been found in the meninges. Such a supposition would account for the hæmorrhages observed during life and the other symptoms. The case would be one of pneumococcal sepsis, with multiple hæmorrhages.

Mr. STEPHENSON replied that a post-mortem examination was made and he would supply the notes. Meningitis was found, affecting chiefly the convexity of the brain; and there was a patch of consolidation at the base of each lung, and some curious changes in the intestine, in the nature of ulceration. There was no suprarenal disease, and there were no other hæmorrhages that he was aware of. In the meninges the pneumococci were in pure culture but they could not be found in the lung. From his own point of view the eye was the region of particular interest. It was very striking that a large hæmatoma of the lower lid, which in the ordinary way would have taken weeks to absorb, was practically gone in one week under the special diet.

Post-mortem Notes.—External appearance, wasted; thin line of ecchymosis on lower lid (right); no swelling of lid. Pharynx, larynx and thorax normal. Pleuræ normal. Lungs: Consolidation of parts of both bases, more extensive on right side. Thymus not enlarged. Bronchial glands enlarged. Pericardium: Slight excess of clear fluid, no signs of pericarditis. Heart normal; weight 1 oz. Abdomen: Liver large and pale; weight 1 lb.; fatty; no free fluid in peritoneal cavity. Intestines: One or two slightly inflamed patches on mucous membrane of small intestine; no hæmorrhages anywhere. Spleen soft; weight $\frac{1}{2}$ oz. Stomach normal, no hæmorrhages. Kidneys: No congestion; normal; weight $1\frac{1}{2}$ oz. each. Brain: Whole surface of vertex and base covered with greenish-yellow pus, most marked over both frontal lobes; excess of turbid fluid at the base of brain; convolutions flattened; sections not made; films show presence of pneumococci; spinal cord not examined. Parietal and frontal bones very thin and transparent. No other abnormality noticed about the bony tissues. No evidence of rickets or congenital syphilis.

Case of Polio-encephalitis Inferior ; Oculo-motor Type.

By SYDNEY STEPHENSON, C.M., and SYDNEY A. OWEN, M.D.

C. N., AGED 8 years, attended the Eye Department of the Queen's Hospital for Children for the first time on January 14, 1915.

History.—(a) Personal: The child went to bed, apparently in her usual health, on the night of January 10-11 last, and next morning the "eye was turned." She then complained of some pain over the right brow. Child always subject to headache, but no increase since onset of present illness. No vomiting. Never had any previous illness of a similar nature. Had always been a bright child: is in Standard II at school. Bowels regular and appetite good. (b) Family history: The patient is one of a family of six children, the other members of which are healthy. None has died; no miscarriages.

Note by Sydney Stephenson (January 14, 1915).—Child appears to be in good health. No obvious signs of syphilis. There is slight ptosis of the right eye, which is deviated outwards and somewhat upwards. There is a defect in the downward and inward excursions of the eye. The secondary deviation is outwards and a little downwards. Diplopia is crossed, and the false image (i.e., that belonging to the affected eye) lies at a lower level than the true, and its upper end is inclined outwards. The signs therefore indicate a paresis of the inferior rectus muscle of the right eye. The right pupil measures 6.5 mm., and the left 5 mm. The latter responds to light with tolerable alacrity, but the former is sluggish in that respect. R.V., $\frac{5}{12}$ (two letters); L.V., $\frac{5}{8}$. No optic neuritis.

Note by Sydney A. Owen (January 15, 1915).—A well-nourished child of healthy appearance. Temperature, 100.4° F. (mouth). No pain now nor localised tenderness. Heart, lungs, and abdomen natural. There are no signs in the nervous system except those detailed above. There is no evidence of a contralateral hemiplegia (Weber type), nor of syphilis (meningo-vascularis), nor of tuberculous meningitis, nor of tumour, nor of diphtheritic paralysis, nor of myasthenia gravis. I tentatively suggest polio-encephalitis inferior as the diagnosis.

Progress.—Eleven days after onset of symptoms (January 21, 1915): Ocular condition as noted, except that (a) right pupil now reacts better to light than it did, and (b) the ptosis is not so marked as it was a week ago.

DISCUSSION.

Mr. STEPHENSON said that when he saw the case on January 14 she had signs of paresis of the inferior rectus of the right eye, and of those branches of the third which serve the levator palpebræ and the sphincter of the pupil. There were no other signs, and his colleague, Dr. Owen, had failed to discover any. He suggested that the most likely explanation of such a case was polio-encephalitis, affecting the nuclei. He knew the proposition was one which could be neither proved nor disproved, but he had seen a considerable number of cases of this type in which one or other eye muscles had been affected in a paralytic sense, and he did not know of any other way of accounting for the condition. The suggestion was at least reasonable.

Dr. LANGMEAD said he happened to have a very similar case under his care. The boy, aged 9 years, went to bed perfectly well one evening, and next morning was noticed by his mother to have a squint. When examined he was found to have a complete third nerve paralysis; but no other abnormality. Pending any other explanation, he thought that polio-encephalitis was the probable diagnosis.

Dr. ROBERT HUTCHISON thought it a somewhat "tall" diagnosis to invoke polio-encephalitis in this case. One might almost as well invoke that disease to account for Bell's palsy. He did not see why, in this case, there should not have been a lesion of the nerves—which might have been called rheumatic, just as some spoke of Bell's palsy as a perineuritis, perhaps rheumatic—and such cases were not uncommon in both children and adults, in which in a night one nerve became paralysed. Some of them cleared up entirely, and that fact was against the cause being polio-encephalitis; moreover, he did not see why that disease should pick out those particular nerves alone, without producing general constitutional symptoms. He preferred to regard the case as a lesion of some kind of the peripheral part of the nerve alone, though he was not prepared to hazard a guess as to what the nature of the lesion might be.

Dr. POYNTON thought Dr. Hutchison's remarks were very much to the point. The difficulty was that some of these cases showed so few cerebral symptoms and one knew what grave symptoms followed poliomyelitis in the cervical cord. He, curiously enough, had a boy with severe cerebral symptoms, which came on suddenly, who had now partial paralysis of the intrinsic muscles of the eye, with that tremor which had attracted so much attention of late as being associated with damage to the red nucleus. Members knew the relation of the third nerve to the red nucleus. That case seemed to support Mr. Stephenson's view, that there was in his case a local polio-encephalitis picking out the third nucleus in part, and also the region of the red nucleus. One saw cases of anterior poliomyelitis in which scarcely any history could be obtained, and he supposed it was just possible that a similar event might happen in a cerebral nucleus without grave cerebral disturbance.

50 Neave: *Infantile Paralysis, with Exaggerated Knee-jerks*

Dr. J. D. ROLLESTON desired to support Mr. Stephenson's view. Acute polio-encephalitis was an acute infectious disease, and, like other acute diseases of the kind, showed abortive forms, and he regarded the present case as one in point.

Mr. STEPHENSON, in reply, said he did not know whether the fact that three distinct branches of the third nerve had been affected would militate against Dr. Hutchison's view that the condition was peripheral. He had been for many years familiar with cases in which children had been brought to him because of squint, nearly always with paralysis affecting the external rectus on one side. In a number of cases there were cerebral and other manifestations; headache, several days of drowsiness and convulsions were common. In one case there was paralysis of a leg. Then he gradually became aware of another group of cases presenting similar eye symptoms, without general symptoms; and that caused him to try to make a definite type of what he had ventured to call "polio-encephalitis of the oculo-motor type." He admitted that his ground for the diagnosis was not secure, and that was his reason for bringing the case to the Section, to hear maturer and more experienced opinions.

Infantile Paralysis, with Exaggerated Knee-jerk.

By SHEFFIELD NEAVE, M.R.C.P.

A. L., A BOY, aged 2 years, was brought to the Queen's Hospital for Children on October 5, 1914, three and a half months ago, with the history that a week previously he had had something the matter with him and was put to bed, and on getting up the leg was found to be paralysed. When he saw the child the knee-jerk was considerably exaggerated on both sides, with a good extensor response, and a rather flabby paralysis of the right leg. He did not think it poliomyelitis at the time, at all events of the cells of the anterior horns of the cord. Later, the calf was found to be much wasted, coldness developed in the leg, there was deficiency of response to electrical stimuli, the flabby paralysis persisted, and there were practically all the signs of poliomyelitis, with the exception of the exaggerated knee-jerk, which latter had gradually decreased. The pathology of the condition presented some difficulties to him, and he showed the case in the hope of hearing them cleared up. He supposed there were circumscribed areas of disease, a vascular infiltration among and around patches of the cells

of the anterior horns, leaving enough sound for the knee-jerk, but that meant a less diffused area than usual in this disease in children. He had never seen a case before in which the muscles were so wasted, with an exaggerated knee-jerk.

Dr. LANGMEAD thought that an increased knee-jerk was not at all uncommon. He had under observation a case such as Dr. Neave described. There was a definite history suggestive of poliomyelitis, lower motor paralysis in one leg, and in the other wasting and the features of poliomyelitis plus increased knee-jerk. The case had gone on as a typical poliomyelitis, but the increased knee-jerk remained.

Congenital Heart Disease and Ulcerative Sore Throat.

By J. D. ROLLESTON, M.D.

A MALE infant, aged 11 months, was admitted to hospital on December 6, 1914, certified to be suffering from diphtheria, on the eleventh day of disease. The father had always been healthy, but the mother had been an in-patient at the Brompton Hospital on several occasions for rheumatism with cardiac complications. The child had always been delicate and blue from birth. Clubbing of the fingers had been noticed since he was aged 2 months.

On admission the child appeared very ill. There were membranes on the tonsils, pillar, and uvula, and a profuse nasal discharge. The heart sounds were clear but rapid. There was a trace of albumin in the urine. A large dose of antitoxin was given on admission and on the following day. A few organisms resembling diphtheria bacilli were found in the cultures, but cocci were predominant.

On December 8 a loud systolic murmur was audible all over the precordium. There was marked ulceration of both tonsils. No Vincent's organisms were found in the throat smears. The ulceration gradually spread over the uvula and palate.

On December 13 stridor and a hoarse cough developed, and there was much difficulty in swallowing. The symptoms persisted and the general condition became worse until death took place from broncho-pneumonia on December 20. The heart showed the following anomalies:

(1) Transposition of the great arterial stems, the aorta arising from the infundibulum of the right ventricle, and the pulmonary artery from the left ventricle (fig. 2). The walls of the right ventricle are considerably

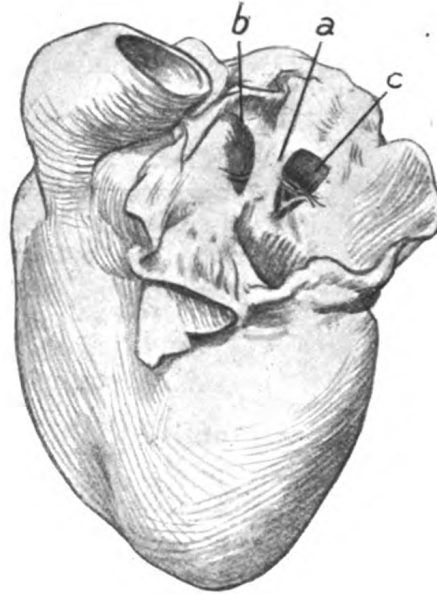


FIG. 1.

a, deficient interauricular septum ; *b*, foramen primum ; *c*, foramen ovale.

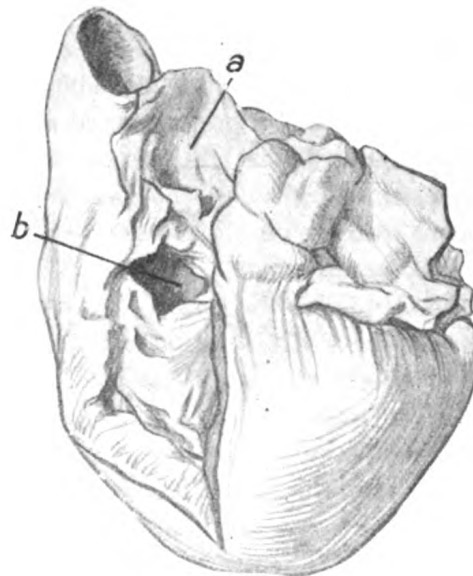


FIG. 2.

a, stenosed pulmonary artery ; *b*, interventricular foramen.

hypertrophied, being almost as thick as those of the left. Both ventricles enter into the formation of the apex.

(2) Marked deficiency of the interauricular septum, which is represented by a narrow band 1.5 cm. long by 0.5 cm. broad. The foramen primum lies anterior to it, and posteriorly there is a widely patent foramen ovale (fig. 1).

(3) An interventricular foramen, 1.2 cm. in diameter, in the "undefended space" (figs. 2 and 3).

(4) Stenosis and hypoplasia of the pulmonary artery, the valve of which has only two cusps (fig. 2).

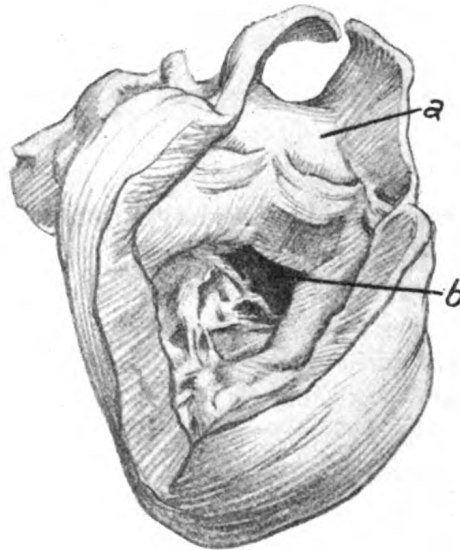


FIG. 3.

a, aorta arising from infundibulum of right ventricle; *b*, interventricular foramen.

The fauces and larynx showed ulceration of the tonsils, frænum epiglottidis, right arytæno-epiglottidean fold, and deep ulceration of the laryngeal portion of the pharynx on each side, especially on the left, exposing the muscular tissue and eroding the thyroid cartilage.

DISCUSSION.

Dr. ROLLESTON added that the only lesion diagnosed during life was pulmonary stenosis. The association of these defects was not common. Professor Keith, to whom he was much indebted for his elucidation of the specimen, said there was no exactly similar case in the Royal College of Surgeons

Museum, which contained the fine collection of Dr. Peacock, the author of the classical work on "Malformations of the Heart." The present case was no exception to the general rule that cases of congenital heart disease were very liable to succumb to acute infection. With regard to the nature of the infection in this case, it was not diphtheria, although there were a few organisms morphologically resembling diphtheria organisms. It seemed to be a case of what Americans called pseudo-diphtheria, or ulcerative sore throat. Of the latter condition he showed a specimen before the Section more than two years ago, but in that case the child died suddenly of profuse hæmorrhage from the throat.¹

Dr. F. PARKES WEBER asked whether this child had had sudden attacks of cyanosis of a paroxysmal character. Such attacks were said to be a feature during the life of certain cases observed and investigated by G. Variot, of Paris.²

Dr. ROLLESTON replied that there were no such attacks as Dr. Weber suggested.

Suprarenal Hæmorrhage in an Infant.

By E. B. GUNSON, M.D.

A FEMALE infant, aged 6 days, was admitted to the Grove Hospital with the mother, who was suffering from puerperal fever. There was a slight inoffensive discharge from the umbilicus, the cord having separated. The child was fretful, but the temperature was normal. Two days after admission the temperature rose suddenly to 102° F., and cellulitis of the left forearm developed. On the following morning, the ninth day after birth, the temperature was 103° F., cellulitis of both arms was present, and there was a patchy erythema on the limbs and trunk. There was no purpura. The stools were frequent, loose, and offensive. The pulse was feeble, and the child was collapsed. Death occurred a few hours later, thirty hours after the onset of symptoms.

Post mortem : The umbilical vein was patent, and contained a brown fluid. The liver and spleen were dark and congested. The right suprarenal gland was black and greatly enlarged, being about two-thirds the size of the kidney. The capsule was intact. On section the glandular substance was found to have been converted into an almost

¹ *Proceedings*, 1912-13, vi (Child. Sect.), p. 42.

² Variot's and other cases were collected by J. Sébilleau, in his Paris thesis, "De la cyanose congénitale paroxystique," published by Vigot Frères, Paris, 1904.

black hæmorrhagic pulp. The left suprarenal was much smaller than the right, but definitely enlarged. The liver, the left suprarenal, and the right kidney, on microscopical examination, presented the appearances of an acute degeneration. The substance of the right suprarenal was largely destroyed, the medulla being more affected than the cortex. A Gram-stained preparation of the left suprarenal showed the presence, both in the cortex and medulla, of streptococci. A culture from the heart's blood gave a pure growth of streptococci; a mixed growth of streptococci, staphylococci, and small bacilli was obtained from the contents of the umbilical vein.

Purpura complicating Diphtheria.

By E. B. GUNSON, M.D.

A GIRL, aged 10 years, was admitted to hospital on the seventh day of the disease. Membrane was present on each tonsil, but three negative cultures were obtained. Sixteen thousand units of antitoxin were



Purpura complicating diphtheria.

administered intramuscularly on admission. An antitoxin rash appeared on the sixteenth day and became marked, involving especially the face and the extensor surfaces of the limbs, where it was circinate in type. On the eighteenth day purpura developed at the site of the antitoxin rash. The purpura persisted till death. Before death the purpuric patches on the cheeks and ears became confluent. Superficial ulceration occurred but there was very little loss of substance. Hæmorrhages occurred into the gums and an extensive subconjunctival hæmorrhage appeared in the right eye. There was old-standing constipation, the stools resulting from the administration of *ol. ricini*, *ol. terebinth.*, $\bar{a}\bar{a}$ 2 dr., each night, being very copious and markedly offensive for many days. Palatal palsy, carditis with "cardiac paralysis," arthritis and albuminuria all developed. There was an irregular pyrexia after the sixteenth day, persisting till death on the twenty-eighth day.

Post mortem: There was a small patch of pericarditis on the anterior aspect of the right ventricle, and an exudate of lymph was present at the base of the great vessels. The myocardium was cloudy. The mitral valve showed recent endocarditis. The lungs and solid viscera were congested. The alimentary tract presented several deeply congested areas in the mucosa of the ileum and cæcum, where some old faecal masses were present. The lymph glands were generally enlarged but not caseous.

DISCUSSION.

Dr. GUNSON said, in connexion with the case of suprarenal hæmorrhage, he wished to emphasise the fact that organisms were demonstrated in the suprarenal, and cultures were obtained from the blood, because in the majority of cases supposed to be toxic, or due to septicæmia, the organism was not found. In regard to the second case, the child was aged 10 years, and developed an antitoxin rash in the ordinary course of events; two days later purpura appeared, and became more marked, and followed almost entirely the distribution of the antitoxin rash. As stated, the child developed cardiac complications, and died at the end of the fourth week. He attributed the purpura to the gastro-intestinal condition, for there was marked constipation and evidence of toxæmia.

Dr. LANGMEAD said the case of suprarenal hæmorrhage interested him much, because, having seen one or two cases himself, he had looked into the literature of the subject some time ago. He thought that cases of suprarenal hæmorrhage in children could be divided into three groups. There were (1) cases of stillbirth with hæmorrhage, (2) cases in which the hæmorrhage came on a short time after birth, and (3) cases in which suprarenal hæmor-

rhage occurred in children who were apparently in perfect health, and at ages of from about 5 to 8 years. In the last group death occurred in from twelve to twenty-four hours, or even less. Those of the first class seemed to result from mechanical causes, a view which was supported by the fact that the children were born more often by the breech than by the vertex, and in many of them great difficulty had been experienced in the delivery. The cases which occurred a few days after birth seemed to be due to many causes; a proportion of them probably by an infection, usually through the umbilicus, possibly also from other sources. Perhaps some of them were syphilitic. There was not much evidence as to what they were due, and he did not know of cultures having been made from the suprarenal gland of organisms which might have been causal. The third group was the most interesting. A typical example was as follows: A child, aged 8 years, went to school in the afternoon apparently in good health and played happily after her return. At about 9 o'clock that evening she felt ill and was feverish. The child was put to bed, and while undressing her the mother noticed a few spots (purpuric) on the body. Two hours later the child had a fit. Her mother took her out of bed, and noticing more spots on the body, took her to the hospital, but the child died a few minutes later, and before arrival. These were puzzling and dramatic cases, and no explanation had been forthcoming. A few were first recognised at St. Bartholomew's Hospital, at about the time of a small-pox epidemic, and it was thought that, possibly, they were due to malignant small-pox, in favour of which view was the fact that none of these children had been vaccinated. Others had been described since, apart from such epidemics, and among vaccinated children, so that this explanation was no longer tenable.

Dr. J. D. ROLLESTON said Dr. Gunson's second specimen seemed to be from a case of purpura fulminans of Henoch, not only because of its fulminating course, but from the almost complete absence of hæmorrhages from the mucous membranes and the organs after death. In this case he thought there had been some bleeding from the gums, but the mucous membrane hæmorrhages were very slight. He showed a photograph of a case of purpura fulminans which he and Dr. McCririck had brought to the Section some years ago.¹ It was sent to hospital as a case of hæmorrhagic diphtheria, but it was obviously purpura fulminans; there was a doubtful history of a preceding rash. Eighteen of the sixty-five cases of purpura fulminans had followed scarlet fever.² With regard to purpura occurring in convalescence from diphtheria, it was very different from hæmorrhagic diphtheria, which was essentially a malignant disease, and was very much rarer. Few cases of purpura occurring in convalescence from diphtheria had been reported,³ and most of them had recovered. In one case, reported by Dr. Goodall, the purpuric eruption was in the distribution of the antitoxin rash.

¹ *Proceedings*, 1909-10, iii (Child. Sect.), p. 75.

² *Brit. Med. Journ.*, 1913, ii, p. 1302.

³ Buckley, *Lancet*, 1901, ii, p. 132; Goodall, *ibid.*, p. 1492; Barlow, *Metropolitan Asylums Board Rep.*, 1901, Med. Suppl. p. 214.

Acute Atrophy of the Liver.

By J. PORTER PARKINSON, M.D.

THE clinical history of the patient from whom these specimens were taken is as follows: A girl, aged $5\frac{1}{2}$ years, had suffered from jaundice for five weeks. This began with vomiting and diarrhoea, which lasted three days. The urine was dark and the fæces pale. She had had no previous illnesses and the family history was good.

On admission on November 5 she was very jaundiced, well nourished. No mental symptoms. Temperature, 101° F.; pulse, 120. The heart and lungs were normal. The liver was enlarged and extended two fingers' breadth below the right costal margin. It was rather tender and hard. The liver enlarged still more till November 14, when it was noticed to be smaller, and by November 16 it could no longer be felt. By this date the child, whose mental state had previously been normal, became delirious and finally unconscious. She had wasted very noticeably. She died on November 17. The urine was about a pint daily, and contained bile pigment and acetone, but no albumin, leucin, or tyrosin.

At the necropsy the body was found markedly wasted. No purpuric spots on skin, but marked hypostasis. The heart and pericardium were normal, but the heart muscle was very flabby. Lungs, *nil*. No peritoneal fluid. Liver small, weight $1\frac{1}{2}$ lb., pale yellow, very friable. On section it contained yellow areas, between which were small dark red spots. Gall-bladder and ducts normal; culture from gall-bladder sterile. Spleen soft, with well-marked Malpighian bodies. Kidneys pale, with injected pyramids. Stomach and intestines normal. Microscopic section of liver shows general staining with bile pigment, the cells are distended with fat globules, but the nuclei are well marked. This fatty infiltration is most marked at the centre of the lobules, but extends to all the cells. There is no distension of the bile ducts and no actual necrosis of the cells. No micro-organisms were found in specially stained specimens.

For the pathological report I am indebted to Miss Richards, who is taking the place of our regular pathologist, now interned in Holland. The clinical history is strongly suggestive of acute atrophy of the liver, but the absence of a definite necrosis of the liver is unusual; it is possible that death occurred before that change in the liver took place.

DISCUSSION.

Dr. F. PARKES WEBER said he assumed that there was no clear evidence of congenital syphilis in the present case. Sometimes in adult patients there was an almost positive causal connexion between acute or subacute atrophy of the liver and acquired syphilis, as was evidenced in a case of his own, which was described in the Pathological Section some years ago.¹ Syphilis was always worth remembering as a possible cause of hepatic atrophy. In the acute or subacute atrophy of the liver, occasionally occurring in the secondary syphilitic period, the effect on the hepatic cells was, perhaps, only one of toxæmia, as the local presence of spirochætes in the liver of such cases had not been as yet demonstrated.

Dr. POYNTON said that, some years ago, he published an account of some cases of acute fatal atrophy of the liver, the pathology of which probably Dr. Langmead could remember more clearly than he could himself, as that gentleman investigated them. Those children had had epileptic attacks, and at first had been treated as cases of ordinary epilepsy; two got somewhat better when so treated. They then disappeared for two or three years, and came back as cases of jaundice, which ran a course much like the present case, with fever and signs of acute destruction of liver and rapid death. In those cases there were obvious signs of syphilis, and the histories confirmed that. The obvious signs were well-marked endarteritis obliterans, particularly in some of the vessels of the brain and heart, in addition to extraordinary atrophic changes in the liver. In another case of a child with epilepsy, he heard from the mother that the child had had syphilis. This child became yellow and ill, and after being treated briskly with mercurials he got better. Subsequently this patient came back in an extraordinary condition of mind, bordering on juvenile general paralysis, and his state seemed hopeless, but at about 15 years of age recovered, after years of steady treatment. He would be interested to hear whether Dr. Parkinson's patient showed changes suggestive of syphilis in other viscera.

Dr. PORTER PARKINSON, in reply, said that in the clinical history there was nothing suggestive of syphilis. The patient was the only child, but the parents had not been long married; they were described as healthy. There was no appearance of syphilis about the child, and a Wassermann reaction was not done. A general examination of the blood-vessels had not been made. The brain was examined, and that organ, with its vessels, was quite healthy. The liver vessels showed no particular change, and nothing seen in any of the viscera could be regarded as due to syphilis.

¹ F. P. Weber, "Acute Hepatic Atrophy in Early or Secondary Syphilis," *Proc. Roy. Soc. Med.*, 1909, ii (Path. Sect.), p. 113.

Persistent Pharyngeal Rudiment.

By F. J. POYNTON, M.D., and T. T. HIGGINS, F.R.C.S.

THE specimen shown was removed from a female baby, aged 5 months, which was brought up with the following history: For five weeks it had been noticed that the baby swallowed its milk with some difficulty, and had occasional fits of coughing, associated at times with dyspnœa. A movable lump had been noticed in the throat.

On examination, the baby was well nourished, and breathing comfortably. On depressing the tongue a pearly-white, rounded polypoid tumour appeared on the posterior wall of the pharynx. This was obviously very mobile, and appeared sometimes to descend from the posterior nares, sometimes to ascend from the lower part of the pharynx. Its attachment could not be demonstrated. Under ether anæsthesia the tumour was found lying in the nasopharynx. It was pear-shaped, and attached by a narrow fibrous stalk to the left lateral pharyngeal wall, exactly in the supratonsillar fossa. A ligature was applied to the base and the little growth excised.

Pathological Report by Dr. G. Robinson-Pirie.—A pear-shaped, fleshy mass, pale pink in colour, 1 in. long and $\frac{1}{2}$ in. wide at its widest part. On section it showed a piece of cartilage in the substance of the tumour. The inner layer was cut with some difficulty. Microscopic examination: Normal skin on outside, showing compound epithelium, hair-follicles, and sebaceous glands, with considerable fibrous tissue in the sub-epithelial planes, as well as fat. The cartilage was slightly rolled up in the cutting.

Section for the Study of Disease in Children.

March 26, 1915.

Mr. THOMAS H. KELLOCK, M.C., President of the Section, in the Chair.

Further Report on Case of Enlarged Liver in a Boy, aged 15 Years (shown at last Meeting).

MR. PHILIP TURNER, referring to the case of the boy, aged 15 years, shown by Dr. H. W. Barber and Mr. F. D. Saner,¹ at the last meeting of the Section, said that, a few days after the meeting, he was asked to perform an exploratory laparotomy, in order to decide what was the nature of the enlargement. The liver was normal, except that it was displaced to the left side by a very large growth arising in the suprarenal region.

Case of the Atonic Form of Cerebral Diplegia (Foerster).

By F. E. BATTEN, M.D., and W. H. VON WYSS, M.D.

THE child is aged 3 years. He is the first of two children, born as a breech presentation after version. He has been weak from birth. He has never been able to stand or walk. He can sit up and hold his head straight. There is a certain amount of kyphosis in the sitting position. He has difficulty in getting up because he cannot balance properly. Instead of lying down he drops down powerless according to gravity. He can move his arms and legs freely, but all his movements show a great deal of incoördination. There is marked hypotonia of the feet, which can be bent on to the tibiæ. There is hyperextension of the

¹ *Proceedings*, p. 43.

62 Batten & von Wyss: *Atonic Form of Cerebral Diplegia*

knee-joints, and a certain amount of hyperflexion of the hip-joints. There is a certain amount of flexor and adductor spasm. When suspended by the axillæ his legs are extended and found to be rigid. There is hypotonia of the different joints of the arms. When placed on his feet he cannot stand unsupported, and when he attempts to walk his legs perform incoördinate movements. The tendon reflexes are active. The abdominal reflexes show a marked overflow, so that the thigh muscles contract. The plantar reflexes give a flexor response. The muscles respond normally to galvanism and faradism. The cranial nerves show nothing abnormal. His intelligence is not bad, but he cannot talk properly, though he understands everything said to him. The Wassermann reaction both in blood and cerebrospinal fluid is negative, and the cerebrospinal fluid shows no chemical or cytological abnormalities.

DISCUSSION.

Dr. J. D. ROLLESTON said the case was one of four described in the March issue of the *British Journal of Children's Diseases*.¹ Apparently, the case resembled, in some ways, the myatonia congenita of Oppenheim. This particular case was interesting because Oppenheim himself saw it some time ago, and described it as myatonia congenita. Apparently the chief differences between the atonic form of cerebral diplegia and Oppenheim's disease consisted in the deep reflexes being normal in the atonic form, and the electrical reactions being normal as well.

Dr. FEARNSIDES agreed with the diagnosis in this case of the atonic form of cerebral diplegia and pointed out some of the more important clinical differences between the manifestations in this patient and in the patient whom he himself had shown at the meeting of the Neurological Section on February 25, 1915, as one of "? Amyotonia congenita"² concerning the diagnosis of which there had been some differences of opinion. Dr. Batten placed both patients amongst the cases of the atonic form of cerebral diplegia, but in Dr. Fearnside's opinion the number of points in which the two patients differed rendered such a classification hardly justifiable.

Dr. VON WYSS replied that the case was not entirely typical of the disease, as there was much incoördination. Other instances did not show that feature to so great an extent.

¹ Batten and von Wyss, "The Atonic Form of Cerebral Diplegia," *Brit. Journ. Child. Dis.*, 1915, xii, p. 65.

² *Proceedings* (Neur. Sect.), p. 49.

Four Cases of Ichthyosis in a Family of Six Children.

By E. G. L. GOFFE, M.D.

HENRY, aged 10 years. Skin dry and scaly; he had scarlet fever in September, 1914.

Willie, aged 8 years. Skin smooth.

Kennett, aged 6 years. Skin dry and scaly; he had scarlet fever in September, 1914.

James, aged 3 years. Skin dry and scaly.

Charles, died at the age of $4\frac{1}{2}$ months. Mother reports skin smooth.

Edith, aged 8 months. Dry, scaly scalp.

The mother reports that the dry, scaly condition of the skin began to show itself about two months after birth in each of the children affected.

I am informed that the father's skin is smooth, and that the father's only sister has a smooth skin.

The mother's skin is smooth. She informs me that her two sisters have smooth skin. One of the mother's brothers has a smooth skin; the other has a dry, scaly skin, she tells me. This brother has five children, and all of them have smooth skins, I am informed.

Two Cases of Ichthyosis in a Family of Five Children.

By E. G. L. GOFFE, M.D.

THE eldest child, Frank, aged 12 years. Skin dry and scaly.

Fred, aged 9 years. Skin smooth.

Lucy, aged 7 years. Skin dry and scaly.

Mabel, aged 5 years. Skin clear.

Alice, aged 4 years. Skin clear.

**Ichthyosis associated with Long-standing Superficial
Ulceration of the Tongue.**

By J. L. BUNCH, M.D.

THE patient, a boy, aged 12 years, has generalised ichthyosis of the trunk, limbs, and face. This has been present since he was a baby. There is marked roughness and thickening of the skin, and hyperkeratosis of the palms. The boy has a chronic glossitis, with superficial ulceration, which has been present all his life, but varies somewhat in severity at different times. His mental capacity is somewhat deficient.

DISCUSSION.

Dr. GOFFE stated that he had shown two other cases of the same disease, Nos. 18 and 19; they were members of a different family, a boy and girl in a family of five. In connexion with the first series shown (Nos. 2, 3, 4, 5) another member, Willie, was reported as having a smooth skin, but, as several members of the Section had pointed out, he had a rough condition of the skin of the back.

Dr. BUNCH asked whether Dr. Goffe had read the literature concerning the heredity of ichthyosis. Though he had seen many cases of ichthyosis he, personally, had not seen more than two members of one family suffering from it. Dr. Goffe had told him that one of these children had had scarlet fever, and that during this illness the condition of the skin was much improved; but that after the child recovered from the scarlet fever the ichthyotic condition relapsed. He had gone into the history of the child he himself was showing. He had had measles, but not scarlet fever, and the mother thought the skin condition was improved during that illness. The boy had chronic glossitis with ulceration, but there seemed no reason to regard it as specific. The question whether ichthyosis could affect mucous membranes was an interesting one. He did not think it was generally recognised; and, as the President had pointed out, this was not the condition known as ichthyosis linguæ.

Dr. J. D. ROLLESTON asked whether in any cases in the series there were any signs of thyroid insufficiency. Several French authorities, including Vincent¹ and Weill² had drawn attention to the association of thyroid incompetence and ichthyosis; and an interesting fact was that these cases were

¹ *Bull. et mém. soc. méd. hôp. de Paris*, 1908, 3 sér., xxvi, p. 588.

² *Presse médicale*, 1909, xvii, p. 121.

sometimes benefited by the administration of thyroid extract. Did any of these cases show mental deficiency, or microsphymia? Also, had they been treated with thyroid extract?

Dr. GOFFE replied that four of his cases were exceptionally bright, and he had not been able to determine any abnormal feature in the thyroids; there was no sign of a myxœdematous condition. Both Kennett and Henry had scarlet fever while in hospital, and in both the skin condition improved during the illness—i.e., on desquamation; but before leaving the hospital the roughness recurred. The little girl in the last two cases showed slight thyroid enlargement. Thyroid extract was tried on one of the cases while in hospital, but apparently with no definite result.

Dr. BUNCH replied that his case differed from those in Dr. Goffe's series, in that there was some degree of mental deficiency, and he was much lower in the school than he ought to be. During the last two or three weeks thyroid extract, $\frac{1}{2}$ gr. three times a day, had been administered, and the mother's view was that since then the brain had been much more active. But he did not think that the drug had so far altered the skin condition much.

Case of Pulmonary Regurgitation.

By EDMUND CAUTLEY, M.D.

GIRL, aged 15 years, with a history of scarlet fever at the age of 9 years, when a heart affection was recognised. Last August, and again in December, she had some pain and swelling in the hands and ankles. On December 29 she took to bed, where she remained on account of shortness of breath, for which she was admitted to the Metropolitan Hospital on January 8, the pain having subsided a week previously. During her stay in hospital there has been no evidence of rheumatic fever, no fever, and no change in the cardiac signs. She is rather high-coloured, big, strong, and well developed. Her periods occur every two weeks.

Enlargement of the right ventricle is shown by percussion, cardiogram and skiagram. Over the pulmonary area there is a long, loud diastolic murmur; most marked over the third and fourth left inter-spaces near the sternum, and 2 in. to the left thereof, and then rapidly lost in all directions; sometimes heard faintly along the right edge of the sternum. There is no thrill. The pulse is rather small and has no "aortic" character, and varies from 68 to 100 per minute. A blood

count on February 12 yielded 5,270,000 red and 8,600 white cells. All the facts appear to support the diagnosis of simple pulmonary regurgitation, except that while the skiagram indicates displacement of the apex a little downwards and to the left as in aortic regurgitation there is no evidence of the hypertrophy usually associated with aortic regurgitation and such a loud murmur. Both the ætiology and prognosis of this case are of interest. Dr. H. H. Brown, of Ipswich, writes me that he has under his charge a schoolboy with pulmonary regurgitation who appears in good condition and health, is good at all sports, and won the competition for staying under water and collecting eggs a few years ago.

DISCUSSION.

Dr. F. PARKES WEBER thought the child had mitral stenosis. The apex beat was very thumping, both on auscultating and feeling it, almost typically that met with in mitral stenosis, although with his hand he could not detect any definite thrill. The question was whether the murmur in the present case was the first part of a long diastolic mitral murmur, of which the last part was not at the present moment heard, or whether there was also pulmonary regurgitation, in which alternative the murmur might represent a "safety-valve" escape. From the *clinical point of view*, he regarded the case as one of mitral stenosis. In speaking of the murmur in the present case he had at first wrongly termed it a so-called "Flint's murmur," which was the murmur sometimes heard in cases of aortic regurgitation, simulating the presence of organic mitral obstruction.

Dr. RUSSELL WELLS said he had heard murmurs in cases similar to this on more than one occasion, and at present one of the patients attending his out-patient department at the Heart Hospital had a pulmonary diastolic murmur and no other; while another had a pulmonary diastolic murmur and other murmurs also. The latter of these was of some interest. When he first saw her, about six years ago, she had a pure diastolic murmur, audible over the pulmonary area. And he made a note in the book, "Is this a case of pulmonary regurgitation?" Careful examination revealed no signs of aortic regurgitation. Not infrequently an aortic diastolic murmur was heard better over the pulmonary area than over the so-called aortic area. But this was not a case of aortic regurgitation. He thought it might be pulmonary regurgitation, and watched the case carefully, having the girl brought up at intervals. In course of time a definite presystolic murmur appeared at the apex, the pulmonary murmur being sometimes present, sometimes absent. During the time she has been under observation the case has steadily developed, the presystolic murmur has disappeared, and now she has a diastolic murmur over the pulmonary area, a systolic murmur, and a faint early

diastolic over the apex, with the pulse and all the electro-cardiographic signs of auricular fibrillation. The question arose whether the present case was similar to the one he had just described, in which, ultimately, it became obvious that one was dealing with mitral stenosis? Or was it pure pulmonary regurgitation? What accounted for the diastolic murmurs heard in cases of mitral regurgitation? He thought the murmur was produced by regurgitation through the pulmonary orifice. In mitral stenosis there was a damming back of the blood into the left auricle, and so on to the venous side of the pulmonary circuit, and there was probably increased pressure on the pulmonary arterial side. The pulmonary artery was an extremely distensile vessel; the ring was lax, and one could easily understand how in exceptional cases the pulmonary arterial valves might become incompetent through back pressure, conceivably before the force of the left auricle was sufficiently great to produce a marked presystolic murmur. That enabled one to understand why there should be a pulmonary diastolic murmur at a later stage, and a presystolic murmur as in his own case. Dr. Weber's alternative suggestion was that the murmur in the present case was produced at the mitral valve, but his own view was that with mitral stenosis the safety-valve action was the more probable explanation. He had another case, which he had watched for three years, in which there had been a murmur just as in the present case, over the pulmonary area, diastolic in time, and pulmonary in extent. In the light afforded by the first case he thought at first that mitral symptoms would supervene, but they had not done so. He was convinced that Dr. Cautley's case was due to pulmonary regurgitation; but he should not like to say whether there was concomitant mitral stenosis or not; there was no marked thrill or murmur at the present time, though it was true that the apex beat was forcible. The case should be watched, to see if signs of mitral stenosis developed later. The members should feel indebted to Dr. Cautley for bringing the case forward, especially as cases with pulmonary diastolic murmurs were distinctly rare.

Dr. CHARLES W. CHAPMAN said his experience coincided with that of Dr. Russell Wells; he did not doubt this was such a case as Dr. Cautley had described. He thought he heard a different murmur over the aortic area, but in that connexion he wished to repeat the complaint he had voiced more than once, that for heart cases there should be a very quiet room set apart; it was impossible to be sure of delicate sounds in a room occupied by crying children.

Dr. ERIC PRITCHARD said he agreed with Dr. Cautley's diagnosis. He did not think the murmur in this case could be at the mitral orifice. If there was no leakage at the pulmonary valve, why should there be no pulmonary second sound? And the latter fact proved that the leakage was extensive and therefore probably the real cause of the trouble. If it were early mitral stenosis, there would be an accentuated pulmonary second sound, not an extensive leakage of this kind.

Dr. REGINALD MILLER said he knew Dr. Cautley would expect some scepticism as to the diagnosis of the case; and he would like to ask why the murmur was so loudly heard in the carotid arteries if this was a case of pulmonary regurgitation and the murmur was a pulmonary diastolic?

Dr. G. A. SUTHERLAND said there was a very well marked diastolic murmur heard at the base of the heart. Was that due to a congenital or to an acquired lesion? Dr. Cautley did not give an opinion on that. When a pulmonary murmur occurred alone, as in this case, one's first assumption would be that it was congenital. But in this patient there was evidence of the occurrence of rheumatism, which made it probable that the lesion was acquired. With regard to the murmur, he was not familiar with this so-called pulmonary regurgitant murmur; and he thought it must be distinctly rare. The suggestion had been made in the discussion that it might have arisen from mitral stenosis. In answer to that, he would say that mitral stenosis with great enlargement of the right ventricle was common, but a pulmonary regurgitant murmur was very rare. The latter should be much more commonly met with if that idea was correct. Dr. Cautley had said there was no evidence of the hypertrophy usually associated with aortic regurgitation and such a loud murmur; but on examining the heart his (Dr. Sutherland's) impression was that the cardiac apex was distinctly extended outwards towards the left side. He thought there was some dilatation of the heart, but not much hypertrophy. He did not see why there should be hypertrophy merely because there was a very loud murmur. In fact, probably the smaller the amount of regurgitation the louder would be the murmur. With regard to the nature of the lesion, he thought it was a case of aortic regurgitation, probably due to rheumatic infection of the valve. The murmur differed from the ordinary one, in that it was conducted upwards and on both sides, but did not appear to be conducted so well downwards. It seemed to have the characteristic qualities of an aortic murmur.

Dr. CAUTLEY, in reply, said he had had the patient under his observation in hospital six or seven weeks, so that the conclusion he arrived at was not a hurried one. The chief questions were as to whether there was aortic regurgitation, or whether it was a case of mitral stenosis with secondary pulmonary regurgitation. The history was somewhat indefinite. All he could say was, that this murmur, or some cardiac murmur, was recognised at the age of 9 years, when the child had scarlet fever. There was no reliable evidence that she had had rheumatic fever, nor was there any family history of that disease. The history of pains in hands and arms did not count for much. He was unable to conceive that a patient could have pulmonary regurgitation of such extent due merely to mitral stenosis. He had seen numerous cases of mitral stenosis, but he did not see pulmonary regurgitation at all frequently. If this child had got mitral stenosis inducing a murmur as loud as in this case one would have expected a well-marked thrill, but a thrill had never been noted. One would also have expected the pulse-rate to have been more frequent than

it was ; normally here it was only 68 to 70, though under excitement it mounted to 100. The pulmonary second sound was not accentuated. And a mitral stenosis which was going to end in the production of so much pulmonary regurgitation would certainly cause some pulmonary stasis, and the child would be subject to bronchial attacks ; yet, while the child had been under observation there had never been a sign of anything wrong with the lungs. Moreover, the size of the heart was scarcely that of a case of mitral stenosis. Though there was some hypertrophy of the right side of this heart, it was not much, and what did exist was easily explicable by the fact that there was some increased resistance in the pulmonary circulation, but not as much as would be induced by mitral stenosis. As this resistance was slight, there was, necessarily, very little occasion for muscular hypertrophy in order to propel the blood onwards. Another point strongly against the mitral stenosis view was, that this girl was big and healthy ; and his experience had been that mitral stenosis occurring in early life interfered with development. With regard to the diagnosis of aortic regurgitation, when he first examined the child he naturally assumed that was the lesion, and it was only after very careful investigation that he concluded this diagnosis was wrong. There was no capillary pulsation, and he could not hear a murmur in the main arteries of the limbs. And, in his view, the pulse was by no means characteristic. He had seen one other case of pulmonary regurgitation, and that he had been able to verify, and had shown the heart before the Society for the Study of Disease in Children.¹ The girl was of the same age as this patient, and died from infective endocarditis, having been under his care on and off for five months, with a murmur identical in character and distribution with that in the present patient. In the fatal case there was a history suggesting primary pulmonary stenosis.

Ectromelus with Absence of Pectoral Muscles on the Right Side.²

By EDMUND CAUTLEY, M.D.

FEMALE, aged 1 year. The metacarpal bones and phalanges of the right hand are absent, together with the pectoral muscles on the same side.

Dr. CAUTLEY said that the child's parents were healthy, as far as he knew, and there was no history of deformity in the family. She was the first born.

¹ *Rept. Soc. for Study of Dis. in Child.*, 1901-02, ii, pp. 45-52.

² Ectromelus (ἐκτρωμα, from ἐκτιρώσκω, to abort or miscarry ; μέλος, a limb) — a monstrosity in which the limbs are nearly or altogether deficient from an arrest of development, as distinguished from spontaneous amputation.

There were dimples showing where the fingers ought to come. In addition to complete absence of the pectoral muscles on the right side there was, apparently, absence of the sternal ends of the second, third, fourth, and fifth ribs. Such cases were more frequent in boys than in girls, and more common on the left side than on the right, so that this was a less usual type of case. As a rule, the pectoralis minor and the sternal portion only of the pectoralis major were absent. The deformed stump fitted exactly into the groove due to the absence of the ribs.

Deformity and Wasting of the Hands with Deformity of the Feet.

By EDMUND CAUTLEY, M.D.

GIRL, aged 7 years, a patient at the Belgrave Hospital for four years. During 1911 she attended for styas, enlarged tonsils, general bronchitis, and occasional enuresis nocturna. In November her feet were encased in plaster for extreme flat foot. In February, 1912, special boots, stiffened on the inner side, were prescribed. Tonsils and adenoids were removed in January, 1913, and the cervical glands were enlarged during the next two months. New boots were ordered in August, 1913, and about this time impairment at the right apex was noted. Recently she has been at Herne Bay for six months for tuberculosis at both apices.

At present there is impairment of resonance at the apices, mostly on the right side, with signs indicative of enlarged glands in the mediastinum on that side, but none of active pulmonary disease. The hands show considerable wasting, ulnar deflection, contraction of the fourth and fifth fingers, and unusually long fingers, with a little clubbing of some of them—(?) a pulmonary osteo-arthritis. Both feet show a little equinus: the left one is very flat, while the right shows extension of the proximal phalanges and flexion of the distal phalanges.

DISCUSSION.

The PRESIDENT asked whether Dr. Cautley considered that the deformity of the hands and feet (in his second case) was of congenital origin, or whether there had been some pathological process going on as well. The child had marked hammer-finger on both hands, which was probably always a congenital deformity, so that it would seem most likely that the rest of the condition of the feet and hands was also congenital.

Dr. F. PARKES WEBER said the hands in the case of the girl with deformity of the hands, &c., were very similar to those in a case of congenital deformity of hands which he showed before the Section¹ two sessions ago, at all events in regard to the presence of ulnar deflection of fingers, which was probably congenital in Dr. Cautley's case also. The clubbing of the fingers in Dr. Cautley's case seemed to be an independent occurrence, and was probably acquired. Dr. Cautley suggested that the child had a condition of pulmonary osteo-arthritis. Every case of that condition had clubbing of the fingers, but very few cases of clubbing of the fingers showed real "pulmonary osteo-arthritis," the presence of which could be at once detected by the thickening of the periosteum of the shafts of the phalanges, as seen in Röntgen skiagrams.² In the present case, however, the fingers, excepting the tips, were unusually thin, which made the presence of pulmonary osteo-arthritis exceedingly improbable.

Dr. CAUTLEY replied that he queried the question of pulmonary osteo-arthritis. He thought it likely that a large part of the condition, and certainly contracture of the little fingers, was congenital. The case had not been under his own care, but under that of the out-patient surgeons and physicians at the hospital for three and a half years, and it seemed that the child had been treated for extreme talipes valgus. Although the feet had been put up in plaster, and special boots were subsequently ordered, he thought it possible that the deformity of the foot on the right side depended on the treatment adopted; in other words, the boots had been worn too long on the right side, and were not of sufficient length. At any rate, the treatment had not cured the flat foot on the left side. The child had pulmonary symptoms, and that might have something to do with the shape of the hands. On the whole, he took the view of the President, that the hand condition was congenital. It was impossible to obtain a history from the mother.

¹ F. P. Weber, "A Slight Congenital Deformity of the Hands," *Proc. Roy. Soc. Med.* 1913, vi (Child. Sect.), p. 27. The illustration shows the partial flexion of the fingers at the metacarpo-phalangeal joints associated with slight ulnar deflection. The child was subsequently discovered to have an inherited syphilitic taint.

² See illustration, F. P. Weber, "The New Bone Formation in a Case of Pulmonary Hypertrophic Osteo-arthritis," *Proc. Roy. Soc. Med.*, 1909, ii (Path. Sect.), p. 187, fig. 1.

Sclerodermia with Sclerodactylia of Antenatal Origin in an Infant.

By E. A. COCKAYNE, M.D.

F. M., MALE child, aged 1 year. First child of healthy parents; premature. The child was first seen five months ago, and found to have congenital hydrocephalus, and deformity of both ears. The hands showed marked sclerodactylia. The fingers were small, hyper-extended at the metacarpo-phalangeal joint and flexed at the inter-phalangeal joints. The feet had the same appearance. There was sclerodermia of the skin of the limbs, preventing complete extension of the wrists, elbows, and knees. Sclerodermia of the skin round the nose and mouth was also noticed. The skin condition in these areas has not changed since birth. A Wassermann reaction proved negative.

On February 9, 1915, the mother noticed that the skin on the outer sides of both thighs was very hard. This condition appeared suddenly and painlessly. There are large, symmetrical areas of thickened skin on the outer aspect of each thigh. The skin is not changed in colour, does not pit on pressure, and is not tender. The surface is slightly nodular. The skin over the abdomen was affected similarly, but to a much less degree. Since this was first noticed there has been no change.

Case of Inherited Syphilis with Wassermann Reactions.

By REGINALD MILLER, M.D.

Boy, aged 2 years, well nourished. First child, no miscarriages, full term, breast-fed.

Father: Infected December, 1911. Treated at Lock Hospital with mercury until April, 1912; then two doses of salvarsan. Wassermann reaction not tested, as he failed to report. In August, 1912, no fresh symptoms; he reported and was found to give a weakly positive reaction. He then received eight doses of mercury intramuscularly. In April, 1914, reaction negative.

Mother: No symptoms throughout. Conception about June 24, 1912.

Child: Born March 22, 1913. At the age of 5 weeks, epiphysitis of left elbow. Was treated with grey powder for seven weeks, combined with inunction (two weeks). Treatment then stopped for two months, owing to doubt in diagnosis. At the age of 5 months he developed scaly rash on buttocks. Was given antisyphilitic treatment, including inunction, from fifth to fifteenth months. None since.

Wassermann reactions of child and mother (full test): At 5 weeks, child and mother negative; at 5 months, child and mother positive; at 9 months, child and mother positive; at 11 months, child negative, mother (after salvarsan and mercury) negative; at 15 months, child and mother negative; at 23 months, child and mother negative.

Dr. REGINALD MILLER said that the father of the child had two doses of salvarsan within three months of the conception of the patient, and the baby did not escape the infection. The father's Wasserman reaction was not tested at that time, but six months later it gave a weakly positive reaction. He had had no fresh symptoms in the interval. He thought one might conclude that at the time of conception the father's blood was either negative or weakly positive. With regard to the diagnosis of inherited syphilis, when an attempt was made to diagnose that condition in babies by means of serum reactions, one usually found that the baby yielded a negative, but the mother a positive reaction; and that supplied a definite clue. In the present case the mother's reaction was negative at the same time. At Paddington Green Hospital there had been three other cases in which, at the time of the origin of the baby's symptoms the mother and baby gave negative serum reactions, but the mother's reaction became positive a few weeks afterwards, although no symptoms had shown themselves; and in a few weeks the baby's reaction became positive in the ordinary way. Therefore evidently a negative Wassermann reaction in the mother was no proof against the child having inherited syphilis. With regard to treatment, it had often been said that under mercurial treatment the Wassermann reaction in a baby did not become negative when once it had been positive. He did not know how that idea originated. It was curious to see how few babies that came under treatment for inherited syphilis remained under that treatment for any length of time. Of the cases he had so treated during the last five years, he could remember only two which remained under his observation for two years. In both those under administration of mercury by inunction and grey powder the positive reaction became negative and remained so.

**Case of Chronic Polyarticular Arthritis commencing in a Child
at the Age of 2 Years 4 Months.**

By E. G. FEARNSIDES, M.D.

W. H., BORN December, 1911. Until April, 1914, the patient was a healthy child. He was breast-fed for twelve months, walked at the age of 11 months, and began to talk when aged 13 months. In April, 1914, he became ill in himself, and subject to attacks of sweating; shortly after this the small joints of his fingers swelled, his knees enlarged, and he became unable to walk.

He first came under my observation on August 28, 1914. At that time he was pale, flabby, wasted, and unable to use his hands, or to walk. There was considerable muscular wasting of the extremities, and great peri-articular swelling of the joints of the fingers, wrists, knees, and ankles, and apparently some enlargement of the bones. The lymphatic glands were not enlarged, and the spleen could not be felt. He sweated freely. The tonsils were not enlarged. No abnormal signs could be discovered in the heart, lungs, or abdomen, and the urine contained neither albumin nor pus.

Under treatment with massage and grey powder by the mouth he has continuously improved. By November, 1914, he was again able to walk. The anæmia gradually improved, and the peri-articular swelling of the knees, ankles, wrists, and fingers, gradually diminished. Skiagrams of the joints show no gross bony changes. The Wassermann reaction in the serum is negative.

At the present time a blood examination by Mr. Herbert Perkins gives: Red blood cells 5,450,000 per cubic millimetre, white blood cells 11,500 per cubic millimetre, hæmoglobin 64 per cent., colour index 0·8, with the differential count—polymorphonuclear cells 48·6 per cent., small lymphocytes 38·4 per cent., large mononuclear cells 10·4 per cent., transitional cells 1·2 per cent., eosinophiles 1·2 per cent., and mast cells 0·2 per cent.

Dr. FEARNSIDES said that although ten days ago, when he last saw the patient, no enlargement of the glands in the axillæ or groins could be detected, to-day the lymphatic glands in these situations were readily palpable, and between these dates the varicellar eruption which was now present had appeared.

Case of Pseudo-hypertrophic Muscular Dystrophy associated with Amentia.

By E. G. FEARNSIDES, M.D.

E. C. P., BORN April, 1905. The patient is a characteristic instance of pseudo-hypertrophic muscular dystrophy. He cannot sit up straight and cannot raise himself from the recumbent to the sitting posture without the aid of his hands. He stands unsteadily on a wide base and walks with a waddling gait. He cannot raise himself from a sitting to an erect posture. When held by the axillæ he slips through his shoulders. The muscles of the calves, the infraspinati, the outer parts of the lumbar mass of the erector spinæ, the lumbar attachments of the latissimus dorsi muscles, and the axillary portions of the serratus magnus muscles are symmetrically hypertrophied and defective in power. The pectoralis major, deltoid, biceps, triceps, the lower half of the trapezius and the glutei, vasti, and anterior tibial muscles on both sides are small and paretic. The rhomboids, supraspinati, and the distal muscles of the extremities are proportionately better developed. There is little lordosis. The grasps are feeble. The dorsi-flexors of the ankles are weak, but there is little talipes equinus. The muscles of the neck are fairly developed and those of the face unaffected. The abdominal muscles appear normal. The knee-jerks can just be obtained, and doubtful ankle-jerks are present. No plantar responses can be elicited. The abdominal reflexes are brisk. The fingers are long and tapering. The metatarsals are hyperextended and the phalanges of the toes distally flexed. The extremities are usually cold; they sweat freely and show cyanotic mottling of the skin. The cranial nerves are unaffected. Sensation and the action of the sphincters are normal. Vision is good, and the optic disks appear healthy. Hearing, smell, and taste are unaffected. He has never been subject to fits or other forms of seizure. The head is irregularly shaped and measures 20 in. in circumference, 13½ in. from nasion to inion, and the vertical bimeatal distance is 13 in. The right frontal bone is prominent and shows a curious bump surrounding a scar. The bridge of the nose, palate, and ears are well developed. He lolls with his tongue and constantly makes grimaces.

Mentally he is backward. He cannot read, does not know the

alphabet, and cannot state where he lives, his age, nor the ages of his brothers. He can only count up to four, and does not know how many twice two make. He does not know the value of money, and calls a sovereign a halfpenny. He can name and knows the uses of common objects. He is interested in pictures, and can name the objects which they depict. He is musical, and can whistle and sing.

As far as can be ascertained, there is no family history of myopathy. His father and mother are normal. The patient is the youngest of four children and the other three are healthy. He has always been backward in walking, and is so mentally. For a short time, some years ago, he attended school.

DISCUSSION.

Dr. FEARNSIDES said that he desired to call particular attention to the association of mental backwardness of severe degree and pseudo-hypertrophic muscular dystrophy. According to Oppenheim this association was not infrequent; but in this country he thought it must be rare, for among the forty cases the records of which he had recently looked up this association had not been noted. He also pointed out the unusual distribution of the pseudo-hypertrophy in this case. The hypertrophy of the calves and of the infraspinati was usual, and that of the lower portions of the latissimus dorsi and of the lower portions of the erector spinæ muscles was not unusual, but what were the peculiar masses on the lateral aspects of the axillæ and chest wall? Were they hypertrophies in the serratus magnus muscles or were they not hypertrophies of any muscles? Personally, he thought that they were probably local hypertrophies of the serratus magnus muscles.

Mr. PHILIP TURNER agreed as to the presence of an interesting lump in the axilla, which he took to be the serratus magnus, though admittedly it came farther forward than was usual. But when traced backwards it seemed to originate from the scapula, so it could not very well be anything else than what he had stated.

Case of Pneumothorax.

By ERIC PRITCHARD, M.D.

E. D., AGED 12 years. Brought to hospital on March 4, 1915, for sudden breathlessness, with some cyanosis and pain in left side of chest. She had complained of the pain off and on for three weeks, but had been going to school until the day she came to hospital. No cough, and no previous illness. On examination nothing abnormal was found in the chest; the heart was slightly dilated, but otherwise in the normal position. Patient refused to remain, and was taken home. She continued to complain of the pain and was faint at times. Two days later she was admitted; temperature 100° F., pulse 104, respiration 28. Physical examination as before. She continued to complain at times of pain in the lower and posterior part of the left axilla, but was otherwise comfortable. On the fourth day the pain became severe, dyspnoea marked, colour pallid, temperature 103° F., respirations 64, and pulse 136. The heart's apex beat was in the fourth right space about 1 in. internal to the nipple line. The left side of the chest was immobile and distinctly full under the clavicle. The note was hyper-resonant, breath sounds scarcely audible, vocal resonance and vocal fremitus absent; coin sound obtained. In four days' time the respirations had come down to 28, and the pulse to 96, while the temperature varied from 100° F. to 101° F.; the patient was quite comfortable. The note at the left base behind became dull, otherwise there was very little change in the physical signs.

DISCUSSION.

Dr. PRITCHARD said that the case was more interesting a day or two previous to exhibition, when the classical symptoms of pneumothorax were present. The history was worth considering. Since the patient had been in hospital skiagrams had been taken. In the recumbent posture, at the level of the third rib there was a dark shadow, which looked like that cast by a foreign body, but it disappeared when the patient stood erect. Clearly that side of the chest was filling up with some fluid, which he thought must be pus. There was no splash such as would be heard in the case of ordinary serous fluid. He thought the dark mass seen when the patient was recumbent

must be due to a puddle of pus, and that it drained away when the patient was upright. At present the coin sound was not very good.¹

Dr. CHARLES W. CHAPMAN suggested it was possible that a foreign body might be at the bottom of the trouble. In his student days a patient was admitted with a history of severe hæmoptysis for many months, and wasting, and the case was accordingly thought to be tubercular. But one day he had a bad coughing fit and coughed up three or four shot. He was a Frenchman employed at a wine merchant's, where his work was to wash out bottles with the aid of shot. He occasionally helped himself to some wine, and in the "push up" at the bottom of one of these bottles evidently some shot had become fixed and in swallowing wine these shot must have slipped down the trachea. Evidently the shot had been lying in his bronchus six months. After parting with them he got rapidly well.

Dr. F. LANGMEAD said that he thought that it would be agreed that pneumothorax was a somewhat rare event in a child. He could remember four cases of the condition, one of which, shown by Dr. Jewesbury before the Medical Society of London, recovered. The other three, which had come under his own observation, all died. In one case the pneumothorax had followed the use of an exploring needle which had been inserted over a dull area on the supposition that fluid was present. In the second case surgical emphysema also occurred and became almost general. The conditions were due to a breaking down tuberculous gland at the pulmonary root, which communicated with the bronchus in the one direction and with the mediastinum and pleura in the other. The third case was also due to a similar cause but was unaccompanied by surgical emphysema. All three cases originated in tuberculous lesions.

Dr. CHARLES W. CHAPMAN said he thought that in this case the chest should be tapped early, and the fluid searched for tubercle bacilli.

Hydrocephalus and Spina Bifida with Deformity of the Legs.

By PHILIP TURNER, M.S.

MR. PHILIP TURNER said the child was first seen by Dr. Rolleston, who sent him to the speaker. He was aged 2½ years, and had considerable spina bifida in the lumbo-sacral region, and hydrocephalus.

¹ An exploring needle has since been inserted but no fluid was detected. The nature of the shadow in the lower half of the left chest is still obscure—it is probably collapsed lung, retained in position by adhesions. The lung is now expanding, but the temperature still keeps up.—E. P., April 1, 1915.

The chief interest in the case was in the condition of the legs. The right leg showed a common state in spina bifida; there was marked talipes equino-varus, and the tibia itself was somewhat curved inwards. The left foot was in a condition of very marked talipes equino-varus, and the thigh was externally rotated to such an extent that the popliteal space was turned directly forwards. One could distinctly feel the condyles of the femur, so that the patella should be behind. But he could not feel the patella at all. On that side the tibia was still further rotated outwards. Another feature of the case was that the knee could not be flexed, though hyperextension was possible, as in genu recurvatum. The legs were not completely paralysed, but the patient could not move them very much. The child appeared to be intelligent, and vision was normal. There was incontinence of both urine and fæces. The skiagram revealed a number of interesting things. The spina bifida showed up extraordinarily well on the plate, and all the bones were present except the left patella. The long bones were unduly slender, and the epiphyses very large and their outline was indefinite. He was doubtful as to the presence of any pathological condition. On the left femur was an indication that there had been periostitis, especially at the upper extremity. He had not heard of the mother having been frightened before the birth of the child.

Note on Suppurative Parotitis following Pneumonia.

By J. PORTER PARKINSON, M.D.

H. O., A BOY, aged 3 years, was admitted to the Queen's Hospital for Children on January 2, 1915. He had been ill for a week with fever and cough. He had always been a weakly child; had whooping-cough at the age of 4 months and pneumonia when aged 1 year. He is the elder of a family of two, with a healthy family history. On admission there were signs of resolving pneumonia in the upper lobe of the left lung, with harsh bronchial rustling at the base of the chest on the right side. The temperature only went up to 99·5° F., pulse 108, respiration 24. Heart, abdomen, and throat normal.

On January 7 the temperature mounted to 104° F. without any increase of the signs in the chest, but next morning there was a swelling in the right parotid region, hard and firm and tender; the next day the overlying skin was red and oedematous, but no fluctuation

80 Parkinson: *Suppurative Parotitis following Pneumonia*

was felt. On the following day, January 10, a deep incision below the lobe of the ear reached an abscess, and a small quantity of thick pus was removed. Films from this showed pneumococci and a few staphylococci. A tube was left in the wound, and the temperature, which had kept continuously about 103° F., fell to normal. Recovery was uneventful, and was practically complete when the child developed measles on January 23 and had to be removed to the infirmary.

I considered this case worthy of record on account of the rarity of parotitis following pneumonia and due to the pneumococcus. Apparently the infection travelled by the blood-stream, as there was no morbid appearance in the mouth and the child never coughed up sputum, so it is unlikely that the materies morbi travelled up the duct.

Section for the Study of Disease in Children.

May 28, 1915.

Mr. THOMAS H. KELLOCK, M.C., President of the Section, in the Chair.

Hemiplegia in a Girl, aged 10 Years ; Onset sudden but without Convulsions ; no Evidence of Visceral Disease.

By C. O. HAWTHORNE, M.D.

L. S., AGED 10 years. History of good health prior to April 4. On this day her mother left her sitting on a chair by the fireside, and, when returning shortly afterwards, found her lying on the floor paralysed on her right side and unable to speak plainly. She did not observe anything in the nature of a fit or convulsion. When admitted to the hospital on April 8 the girl had right hemiplegia, was unable to talk plainly, and had a temperature of 103° F. Examination otherwise negative, and cerebrospinal fluid apparently normal. The temperature fell to normal the next day, and the paralytic condition soon began to improve.

Dr. Hawthorne said the point at issue was the pathological and anatomical diagnosis. He supposed that the more ordinary causes of hemiplegia might be excluded in the absence of visceral disease, albuminuria, and evidences of syphilis. Hence it seemed that one was reduced to calling the case one of encephalitis, though this was far from a satisfactory diagnosis. He did not see the onset of the case, but the mother's account of finding the child on the floor, without any sign of there having been a convulsion or fit, seemed fairly trustworthy. If that were accepted, it seemed to remove the anatomical diagnosis from the cortex, because in the case of acute cortical lesions one would expect convulsions in the corresponding muscular area. He would be glad to receive any suggestions from members of the Section.

DISCUSSION.

In reply to the President, Dr. HAWTHORNE said there was no evidence of injury having been received by the patient.

Dr. HARRY CAMPBELL confessed that the diagnosis advanced by Dr. Hawthorne did not greatly appeal to him. The onset of the hemiplegia was sudden, and it seemed improbable that encephalitis should cause a sudden hemiplegia. This diagnosis required that the encephalitis should be limited to the motor cortex of one side, and such a limitation was unlikely. He (the speaker) thought the illness was more likely to be due to a hæmorrhage. Cerebral hæmorrhage sometimes occurred even when the blood-pressure was not raised.

Dr. PORTER PARKINSON asked whether there was likely to be congenital syphilis in the case; whether the Wassermann test had been done. The onset suggested a vascular rather than an inflammatory lesion; and hemiplegia without involvement of any cranial nerves was unusual in anterior poliomyelitis. Occasionally one saw cases in which one or more cranial nerves were affected, and there was hemiplegia with or without affection of the face; but it was unusual to find simple hemiplegia of this kind in encephalitis. If syphilis were present it could easily cause such a lesion as would account for the symptoms.

Dr. HAWTHORNE, in reply, said he believed the Wassermann reaction was tried, but he could not at the moment be certain. The appearance of the child was quite free from any suggestion of inherited syphilis. He agreed with the principle underlying Dr. Harry Campbell's remarks. His (the speaker's) belief was that the diagnosis was the one set forth in the descriptive title, and he did not think it could be taken further.

Cystic Lymphangioma in Infant.

By ERIC PRITCHARD, M.D.

THIS case was shown to the Section on January 23, 1914, as one of persistent "caput succedaneum." Subsequent events have proved that this view of its pathology is incorrect, and that the tumour is probably a congenital cystic hygroma or lymphangioma in an unusual situation. At the time the diagnosis was obscured by the fact that the tumour was the presenting part (left shoulder presentation) and that the contents of the cyst, which were drawn off by the hypodermic needle,

consisted of a blood-stained fluid like blood serum. The tumour has continued to increase in size *pari passu* with the growth of the infant.

Dr. Pritchard said he was showing the case again because previously there was considerable doubt as to the diagnosis. But since first showing the case the tumour had been getting larger as the child had grown, and no doubt the former diagnosis of caput succedaneum was wrong. Probably it was a cystic lymphangioma. The difficulty about that diagnosis was the fact that in drawing off some of the fluid it was found to be blood-stained. He did not know whether that was due to the presenting part suffering some trauma at the time of birth. Some of these cystic hygromata contained curious things. Many years ago, when he was a student at Radcliffe Infirmary, Oxford, Mr. Morgan showed a case of cystic hygroma—a red, swollen and painful tumour. He asked the students what they thought it was, and the general view was that it was an ordinary abscess in the neck. But Mr. Morgan laughed and said it only contained clear fluid. A few days afterwards the case was taken into the operating room, and when Mr. Morgan opened it, much pus gushed forth, which made one wonder whether it was, after all, lymphangioma.

DISCUSSION.

The PRESIDENT asked whether Dr. Pritchard intended to have anything surgical done. These swellings sometimes behaved curiously; they were liable to attacks of acute inflammation arising spontaneously, and this was also likely to occur if interfered with surgically and not completely removed; whereas, if they were left alone they often became gradually smaller and finally disappeared. Not long ago a man came home from Sicily bringing with him a boy, aged 14, and said he thought Mr. Kellock would like to see him again. It appeared that the boy as a young child had been in the Children's Hospital in Great Ormond Street with a large hygroma of the forearm. The father said a surgeon in Italy had removed a small piece, examined it, and said it was lymphangioma. This was the only operation that had been done. When seen, the arm was practically normal. When inflamed, these tumours often resembled sarcoma. Interference in the present case might cause trouble; if left alone it would be harmless, and might in time disappear.

Dr. PRITCHARD replied that he was glad to hear the President's suggestion to leave the tumour alone; it accorded with his own idea. The mother was anxious to have something done immediately.

**Child with Defective Patellæ and Contraction of Limbs.
Case for Diagnosis.**

By H. THURSFIELD, M.D.

CHILD, aged 8 months, with asymmetry of head and chest; thumbs flexed into palms; legs flexed at knee-joints, cannot be fully extended; patellæ obviously defective. Talipes of both feet. Fourth child, full term, natural labour; other three alive. No miscarriage. Mother quite healthy during pregnancy. Diagnosis of condition required, and suggestions as to treatment of the legs.

DISCUSSION.

Dr. THURSFIELD said he was grateful to those members who called his attention to the fact that the description he had set down was false; the child was possessed of patellæ and fibulæ. He was obliged to Dr. Cockayne for having directed his attention to a paper in the *Zeitschrift für Kinderheilkunde*, describing two cases which seemed to be closely allied to this condition. The author of that paper, apparently, attributed the condition to a deficiency of the pituitary body; at any rate in one case, in which he obtained an autopsy, he found the surface of the hypophysis shrunken and the organ flattened; the other ductless glands were all right, and the conclusion arrived at was that the condition was due to a partial giant growth, of congenital nature, which caused a general bone deficiency; and perhaps also early intra-uterine destruction due to disease of the endocrine glands. He supposed his surgical colleagues would be able to strengthen the limbs of this patient. If anything further happened, he hoped to report to the Section later.

Dr. F. PARKES WEBER said he remembered a child who was shown some years ago at a clinical meeting of the Medical Society of London, by Dr. F. J. Poynton.¹ The child had very long fingers and toes, and Dr. Poynton called the case one of "Atavism," but it evidently corresponded to Dr. Thursfield's case and the cases of so-called "Arachnodactylie" to which Dr. Thursfield had alluded. It would be interesting to follow the progress of Dr. Thursfield's patient. In regard to the possible rôle of the pituitary gland in such cases, it should be borne in mind that the same condition of the pituitary gland which in adults produced the changes in the extremities characteristic of acromegaly might in earlier life (whilst the patient was growing in length of body and limbs) give rise to a condition of giant growth in regard to the height of the body and the length of the limbs.

¹ F. J. Poynton, "Case of Atavism," *Trans. Med. Soc. Lond.*, 1903, xxvi, p. 338.

Dr. ERIC PRITCHARD thought any pathology by which it was sought to explain this condition should take into account the asymmetry, which was extraordinarily well marked in the head and chest. If it was due to some internal secretion, it was difficult to see how it would explain the occurrence of asymmetrical growth on the two sides. He regarded the child as mentally defective. It also had physical stigmata in other parts—the ears were deformed and very large. He would expect to find some nervous lesion, rather than a glandular defect.

Case of Polio-encephalomyelitis.

By MAUDE RICHARDS, M.B.

(Introduced by ERIC PRITCHARD, M.D.)

THE patient, a healthy boy, aged 7 years, developed a squint and double vision on April 27. He was brought to the Queen's Hospital for Children on May 3, when he was examined, but no other lesion could be discovered. On May 8 the parents noticed weakness in right arm and dragging of right leg. On May 10 he was brought again to the hospital, and then complete palsy of sixth left nerve was discovered. No nystagmus. Disks normal. Partial paralysis of right twelfth nerve. Shoulder-girdle: Some weakness of right side. Arms: No wasting of arm and hand muscles; temperature of both the same; weakness of right arm and hand; grip poor on right; right thumb and fifth finger can only be opposed with difficulty; jerks +, more so on left side. Abdomen: Reflexes on left side active, absent in upper half on right side; no wasting. Legs: No wasting; right leg and foot colder than left; weakness of muscles; knee-jerks active on right, exaggerated on left; no ankle clonus; ? extensor response on right, flexor on left.

On May 14 the boy was admitted to the hospital. New lesions found to be present. Seventh nerve palsy (incomplete type) on the right side; eighth nerve affected; partial deafness; taste normal. Arms: No wasting; grip on right side weaker than left; jerks exaggerated on right, active on left; total inability to oppose thumb and fifth finger; marked dysdiadokokinesis on right side. Abdomen: Reflexes absent on right side. Legs: Weakness greater on right side; right colder than left; knee-jerks, clonus on right, exaggerated on left; no ankle clonus; Babinski's sign on right side, flexor response on left. No spasticity. Inco-ordination in walking. No Rombergism. Sensation to light, and painful touch on right leg and foot slightly diminished, otherwise normal.

DISCUSSION.

Dr. ERIC PRITCHARD, in the absence of the exhibitor, said it was not an easy case to comprehend. At the present time it presented the appearance of hemiplegia with paralysis of sixth and seventh nerves on the opposite side, pointing to a lesion on the left side of the pons, at the level of the exit of the seventh nerve. The result of the Wassermann test was not absolutely definite; there was partial hæmolysis. It would be repeated. There was possibly a tumour or syphilitic lesion in the pons.

Dr. C. O. HAWTHORNE said he hoped members would hear of this case again, as manifestly it was a very complicated and difficult one. He would like to entertain the view that there was possibly a tumour at the base of the brain. Intracranial tumours show variations in symptoms, presumably from varying degrees of vascular congestion produced in their neighbourhood. He did not think, therefore, that the clinical history of the case excluded the diagnosis of tumour.

Case of Ectrodactyly.

By J. D. ROLLESTON, M.D.

GIRL, aged 3 years. Right upper arm and forearm are of the same size as the left, but the right hand is rudimentary. The right metacarpus is 2.5 cm. long by 4 cm. broad, the left 5.5 cm. by 6.5 cm. broad. The phalanges of the right hand are represented by five small tubercles; the thumb tubercle is the largest, being 9 mm. in length, and alone carries a nail, the little finger is 2 mm. long, and the second and third fingers only 1 mm. long. The thumb rudiment and, to a less extent, the other tubercles, are movable at will; there is no trace of a scar. The left upper limb and both lower limbs are normal, and there are no other external deformities nor apparent visceral anomalies. Apart from the ectrodactyly the child is well developed. The parents and two other children in the family present no deformity. The mother attributed the patient's deformity to having seen, during the fourth month of pregnancy, her eldest daughter catch her fingers in a mangle. The girl escaped with slight bruising of the fingers, and the mother did not anticipate the deformity of her child.

Dr. Rolleston said ectrodactyly was a lesser degree of deformity than ectromelus, of which Dr. Cautley had shown a case at the last meeting.¹

¹ *Proceedings*, 1915, viii (Child. Sect.), p. 69.

Both terms were invented by the celebrated anatomist Isidore Geoffroy Saint-Hilaire,¹ in 1832. Several explanations for the condition had been offered, one of which was maternal impressions. There was such a history in this case, but, unfortunately, the supposed maternal impression occurred two months after the limbs had been separated into three segments. There were also the theories of constriction by a band and intra-uterine amputation. And mal-development of the central nervous system, acting as a trophic centre, had also been invoked. With regard to the first two theories, there was no evidence of a sulcus such as would be caused by a constricting band, nor evidence of a scar, the result of an intra-uterine amputation. The presence of rudimentary fingers did not negative the theory of intra-uterine amputation, because the human



Case of ectrodactyly.

embryo, like the adult salamander and some amphibians, had the power of regenerating portions of limbs.² The question as to mal-development of the nervous system could not be settled. Several cases had been recorded in which mal-development of the cervical enlargement had been associated with thoracic ectrodactyly or thoracic ectromelus³ and absence or mal-development of the lumbar enlargement had been

¹ "Histoire des anomalies de l'organisation chez l'homme et les animaux," Paris, 1832.

² J. W. Ballantyne, "Ante-natal Pathology and Hygiene: the Embryo," Edinb., 1904, pp. 195-196; M. Duval, "Nouveau Traité de Pathologie générale," 1912, i, p. 318.

³ Guinard, quoted by Meunier, *Nouv. Icon. Salpêtr.*, 1897, x, p. 15; Troisier, *Bull. Soc. Anat. de Par.*, 1873, 5 sér., vi, p. 140; Variot, *Bull. Soc. d'Anthrop. de Par.*, 1890, 4 sér., i, p. 487.

associated with abdominal ectromelus.¹ Hereditary syphilis had been given as a cause of mal-development of the nervous system,² but in his case there was no evidence nor history of that disease. He had not had a full account of the skiagram, but apparently all the bones were present except those of the phalanges.

Case of Deformity of the Left Hand, with Constriction of the Right Forearm.

By E. G. L. GOFFE, M.D.

FEMALE, aged 4 years.

DISCUSSION.

Dr. GOFFE regretted that the case similar to Dr. Rolleston's had not come. His patient was a boy, and the deformity was on the left side, a point mentioned by Dr. Cautley in the notes on his case of ectromelus, shown at a meeting of this Section on March 26, 1915: "Such cases were more frequent in boys than in girls, and more common on the left side than on the right."

Dr. C. O. HAWTHORNE asked whether one could properly rule out the possibility of intra-uterine amputation because no scar could be seen on the stump. If amputation took place in early intra-uterine life, the limb would be very small. He thought it possible for such an amputation to occur and yet leave nothing which would catch the eye and be recognised as a scar in later life. One of Dr. Goffe's cases showed a groove of constriction; and he had seen several cases with a groove on one limb, and absence of a portion of the limb on the opposite side. Some years ago he showed, before the Children's Society,³ a case in which there was a complete groove on one thigh, and another groove completely encircling the abdomen. The case was figured in the reports of the Society. Such experiences suggested a stage stopping short of amputation, and lent colour to the suggestion that absence of a peripheral portion of a limb was due to the action of some constricting agent. Another point in Dr. Rolleston's case was the presence of rudimentary fingers on the stump. Dr. Hawthorne quite agreed that this did not neutralise the suggestion of intra-uterine amputation. He had figured a case in which such rudimentary fingers were present

¹ Serres, quoted by Meunier, loc. cit.

² E. Fournier, *Thèses de Par.*, 1897-98, No. 391; G. Gasnc, *Nouv. Icon. Salpêtr.*, 1897, x, p. 31.

³ *Rep. Soc. Study Dis. Child.*, 1903, iii, p. 29.

on a stump in the immediate neighbourhood of the elbow-joint. Hence the capacity of the proximal part of the limb, in a certain stage of development, to produce digits, existed even though a considerable part of the limb was removed.

Amaurotic Family Idiocy (Waren Tay-Sachs Disease).

By F. E. BATTEN, M.D., and MILDRED A. JUKES.

R. L., AGED 11 months. Born of Jewish parents at full term, and apparently normal at birth. Weakness of the arms and legs was soon observed, and at the age of three months the mother noticed that the child was blind. The child is the youngest of eight; one sister, similarly affected, died in infancy one year ago. She is a well-nourished child, but feeble; cannot sit up without support. There is no rigidity; all reflexes are normal. The child takes no notice of her surroundings, lies quietly in bed, and is not irritable. There is some perception of light, otherwise the child appears to be blind. On examination of the fundi, the typical white patch is seen on the maculæ with a central, cherry-red spot. The cerebrospinal fluid is normal. The Wassermann reaction is negative.

Pericarditis in Diphtheria.

By PHILIP FIGDOR, M.B.

A BOY, aged 3 years, was admitted to hospital for laryngeal diphtheria on November 30, 1914. Tracheotomy was performed shortly after admission, with instant relief. On December 14 the cardiac rhythm became irregular. On January 11, 1915, a faint systolic murmur was heard at the apex. On February 27 the cardiac dullness was greatly increased in both directions, and a soft ventricular murmur was heard at the apex, in the axilla and pulmonary area, and there was occasional reduplication of the second sound. On March 1 the murmur was heard in all the areas, but best at the apex. The cardiac dullness was slightly decreased on the right. On March 5 the general condition of the patient was much worse, cyanosis was marked. The cardiac dullness was greatly increased in both directions, and a harsh, double murmur was

heard in all the areas. A diagnosis of pericarditis was now made. March 8: Cardiac dullness considerably reduced. A mid-diastolic murmur was heard within the apex. By March 15 the cardiac dullness was again greatly enlarged, and death took place on March 23.

Post-mortem: The parietal and visceral layers of the pericardium showed recent pericarditis. There was about 10 oz. of serous pericardial fluid. Mitral valve: Edges thickened and eroded. Aortic and pulmonary valves healthy. Left ventricle hypertrophied; right ventricle slightly hypertrophied. Great œdema of pericardium and tissues at root of neck, including the thymus. Lungs almost airless; no tubercle; no evidence of consolidation. Very little fluid in pleural cavity. Slight œdema of mesentery. Gall-bladder œdematous, walls being about $\frac{1}{8}$ in. thick.

Dr. J. D. ROLLESTON said pericarditis was a very unusual event in diphtheria; he had very seldom been able to diagnose it during life, and he had never seen it on the post-mortem table. About the only lesion one found in the pericardium in diphtheria was pericardial petechiæ, which were liable to occur in severe hæmorrhagic cases. Occasionally there might be hæmorrhagic effusions in the pericardium in cases of diphtheria. Not long ago two specimens were shown to the Section of pericarditis in scarlet fever;¹ that was not so rare an occurrence in scarlet fever as it was in diphtheria. There were no statistics of the latter; but in scarlet fever, according to the statistics of the Metropolitan Asylum Board for the ten years 1900-09, the frequency of the association was 0.10 per cent. In the present case it might be doubted whether diphtheria was entirely responsible for the pericarditis, for though the account showed there was some cardiac mischief before, the pericarditis did not come on until two months after the attack of diphtheria. There might have been some latent rheumatism.

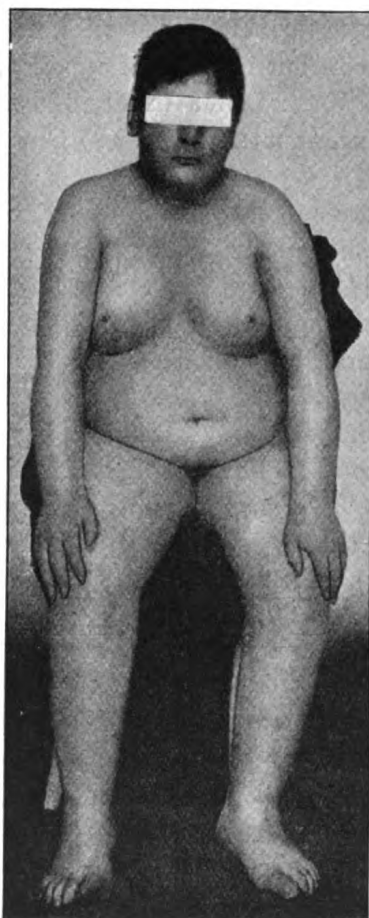
¹ E. B. Gunson, *Proceedings*, 1915, viii (Child. Sect.), p. 35; E. G. L. Goffe, *ibid.*, p. 36.

Case of Hypopituitarism.

By F. LANGMEAD, M.D.

W. H., MALE, aged 19 years 3 months.

History: The boy has always been noticed to be backward, and did not talk properly till nearly 4 years old, nor walk alone till nearly the



Case of hypopituitarism.

age of 3 years. At school he made but little progress. Between the ages of 5 and 7 years he is said to have been kept in bed because of tuberculosis of the left hip-joint, during which time he became very

thin. Afterwards he attended a "cripple" school for two years. He then appeared to be in good health, but was slow in learning. At the age of 12 years he began to get very fat. He remained at school till the age of 14 years, and since then has done a little light work. According to his mother, he has shunned the society of other boys, appearing to be very sensitive about his size. Since Christmas, 1914, he has had six convulsions, during some of which he has bitten his tongue; they are not preceded by an aura. The longest fit lasted about ten minutes. From earliest infancy it has been noticed that he has passed a large amount of urine. Since the onset of fits he has complained of slight headache, but it does not appear to be a marked feature.

Family history: He is one of a family of seven, five of whom are strong and well, and are not unduly fat. One died in infancy from measles.

Present condition: The boy is extremely obese, as shown by the photograph and the following measurements: Height, 58 in.; upper arm, circumference, $11\frac{1}{2}$ in.; forearm, circumference, right 11 in.; left, $10\frac{3}{8}$ in.; chest, 31 in.; abdomen (umbilical girth), 43 in.; thigh, $10\frac{1}{2}$ in.; calf, 14 in. His general development, mental and physical, approximates to that of a boy aged 11 or 12 years, rather than 19 years. The genitalia are rudimentary, the testicles being felt with difficulty and being no larger than peas. There is no hair on the face, but some in the suprapubic region. The breasts and general development are of the female rather than of the male character. The voice does not appear to have broken, though it is not strikingly infantile or feminine. The amount of urine passed *per diem* varies between 104 and 300 oz. He also suffers from polydipsia, the amount of fluid taken varying roughly in proportion to the polyuria. The optic disks and the fields of vision are normal. The blood-pressure appears to be equal to between 110 and 130 mm. of mercury, but the figure is not very reliable owing to the obesity. The pulse is small and easily compressible. Weight, 11 st.

Sugar tolerance has not yet been tested adequately, as it has been found impossible to get him to retain a sufficient amount of the only glucose available: the urine, tested hourly after about 198 grm. were retained, contained no sugar, however.¹

The diagnosis is established by a skiagram of the pituitary fossa, which is seen to be minute, the posterior clinoid region being greatly thickened.

¹ Tested at a later date, about 400 grm. were tolerated without glycosuria.

**Localising Brain Symptoms (Hemiplegia and Hemispasm) as
Early Events in Tuberculous Meningitis.**

By C. O. HAWTHORNE, M.D.

IN many cases of tuberculous meningitis, perhaps in the majority, the early diagnosis is difficult because the symptoms are general, vague and indefinite; and indeed it is not very unusual for the disease to run its course to a fatal termination without any more precise announcement of a brain lesion than a gradually increasing coma, with or without vomiting. In other instances there occur, in addition, motor disturbances—paralyses or convulsions—which in such circumstances as those just proposed are highly significant and make the identification of the clinical picture a fairly confident and easy one. A squint is perhaps the most frequent of these paralyses, though other localised palsies are far from being unknown. Convulsions, also, are not uncommon in the later phases of the disease, and while they may occasionally be localised their distribution is in most instances widespread and bilateral. Speaking generally, all such events are relatively late phenomena, and it is their postponement which is largely responsible for the preliminary period of diagnostic hesitation or uncertainty, qualified though this may be by a greater or less measure of suspicion.

As a contrast to this story of gradual and insidious movement, and of defective and delayed clinical definition, it is necessary to note that occasionally tuberculous meningitis has an abrupt onset, and that this may take the form either of localised palsies or of localised convulsions. Such experiences are hardly likely in themselves to suggest tuberculous meningitis, seeing that the palsies and convulsions of this disease are usually not early, but late features of the clinical history. The diagnosis in such circumstances may contemplate the possibility of an intracranial tumour or of an attack of encephalitis; or again, at least in regard to convulsions, an explanation may be hoped for in the direction of "reflex irritation" arising from such influences as troublesome dentition, digestive disturbances, intestinal parasites, and so on, such a view of the position being facilitated, perhaps, by the temporary character of the convulsive or paralytic events. There would seem, therefore, to be some practical value in illustrations of the statement that a localised paralysis or a unilateral convulsive seizure may mean

the clinical beginning of tuberculous meningitis. So wide a departure from the usual course of the disease may readily mislead both diagnosis and prognosis, and the occasional cases which illustrate it are therefore worthy of record. It is from this point of view that the two following cases are summarised and presented. In each instance the sequel placed the diagnosis beyond doubt, but at the outset it was not easy to frame a confident interpretation.

The first patient was a boy aged 10 years. At one time he had had some enlarged glands, but otherwise had enjoyed very good health. On September 18 he was said to have been sick while at school, but this was regarded as a matter of no consequence, and on the two following days he was as active and happy as usual. During the night of September 20, however, he again vomited, and in the morning it was noticed that his speech was peculiar and his face "drawn." Examination showed a paralysis of the left face and left upper limb, with a doubtful extensor response in the left foot. The paralysis disappeared in the course of forty-eight hours and the boy seemed quite well again. But on the following day there were repeated convulsive seizures, limited to the left limbs, and apparent inability to speak, though no coma or unconsciousness. On the cessation of the convulsions left hemiplegia was again observed, but otherwise clinical examination was entirely negative, this remark including both the fundus oculi and the cerebrospinal fluid. During the convulsive seizures the temperature rose to 101° F., but prior to this it had been normal or just above 99° F. Later the paralysis entirely disappeared, but headache, persistent vomiting, febrile temperatures, and abundant cellular elements in the cerebrospinal fluid, left no room for uncertainty in the diagnosis. In the early days of the case, however, it was not easy to be confident. The boy, it is true, had twice vomited before the paralysis was observed, but he made no complaint and showed so little evidence of general disturbance that his mother took him out to the doctor's house, and it was there that the hemi-paresis was noticed. At that date a diagnosis of tuberculous meningitis would have appeared in sharp contradiction to the patient's general condition, yet subsequent events showed that this was the true interpretation. (I am indebted to Dr. J. D. R. Monro for assistance in completing the notes in this case.)

The second patient was a boy aged 1 year 7 months. He was brought hurriedly to the hospital because he had been suddenly seized with convulsions, and these, it was seen, were strictly limited to the right side. The rectal temperature was 98·2° F. The child was at once

admitted, and after an hour or so the convulsions ceased. On the following day he appeared to be quite well and there seemed to be no reason to resist the mother's determination to take him home; there was no paralysis or other evidence of organic disease, and the cerebrospinal fluid was free from any excess of cells and from micro-organisms. In two days' time the boy was again brought to the hospital with further convulsive seizures, and he gradually developed characteristic signs of tuberculous meningitis; the cerebrospinal fluid showed a mild degree of lymphocytosis, but no bacilli were found in it. The diagnosis was confirmed by post-mortem examination.

As in the first case, the peculiarity of the second record is the early development of motor disturbances suggesting a localised lesion in the brain and ceasing before the more generalised symptoms of meningitis displayed themselves. The absence of change in the earlier examinations of the cerebrospinal fluid is likewise illustrated in each record, but this is hardly an uncommon experience in tuberculous meningitis; the same may be said of the failure to find tubercle bacilli, even in the later tests.

The question may be asked, how are these early, sudden, limited, and transitory developments, of paresis in the one case and of convulsions in the other, to be explained? Convulsions and paralysis are, of course, not infrequent in the later stages of tuberculous meningitis, and are then presumably due to such events as increased intracranial pressure, encephalitis, and cerebral softening following vascular obstruction. It is not easy to apply any of these explanations to an early and temporary hemi-paresis such as is described in the first of the two cases here recorded; and though the invasion of the disease, as is the case also in other infections in childhood, may be marked by generalised convulsions, the cause of these, whatever it be, will hardly apply to the strictly unilateral spasm which marked the onset of the second case. On the face of both histories there would appear the suggestion that the sudden and limited motor phenomena marked the arrival of the specific irritant within the cranial cavity and its application to a localised area of brain tissue. That the tuberculous meningitis was in each instance a development secondary to some primary tuberculous focus may be accepted as certain, and indeed in the case of the infant this issue is closed beyond moral doubt, as the necropsy showed extensive disease of the mediastinal glands. Presumably, from such primary source the irritant reached the brain through the blood-stream and in the fashion of an embolus, or rather as minute multiple emboli. It is not difficult to believe that the sudden arrival of such emboli, if and when they fall in force on the

motor cortex of one hemisphere, would be capable of producing in the cortex disturbances which might express themselves clinically either as unilateral convulsions or unilateral paralysis. Nor is it difficult to advance to the position that this sudden blow might, after a time, be followed by a local recovery of nerve function, with consequent disappearance of the convulsions and paralysis. The subsequent appearance of the signs of a generalised meningitis must doubtless be explained by the tendency of the specific irritant, when once implanted, to produce a gradually extending infection. Perhaps the chief difficulty in accepting such an explanation is the rarity of such events as are here recorded. Tuberculous meningitis is usually, if not invariably, secondary to primary tubercle existing in the chest or other part of the body, and equally the infection is commonly conveyed by the blood-stream. Why, then, do the specific emboli not frequently announce their arrival by such localising events as unilateral convulsions or hemi-paresis? To say that the emboli are not usually distributed in the fashion necessary to produce these manifestations is consistent with the facts, but it only pushes the difficulty back by a stage. The position is, however, hardly more acute here than it is in relation to the localisation of emboli generally, for it would be a hard task to explain why such bodies, arising from corresponding sources, say the left auricular appendix, show, in different cases, a great variety in the pattern of their distribution. The same comment may be made in relation to the problem now at issue, and it does not seem possible to carry the position further than to say that, whilst such an experience is not common, the arrival of the infection in tuberculous meningitis may be marked by limited motor phenomena suggestive of a localised cerebral lesion. That a localised tuberculous lesion within the skull may be the centre from which spreads a diffuse meningitis seems highly probable, if not certain, seeing that occasionally, with tuberculous meningitis, a limited area of obviously old-standing disease is present. In such cases the first infection has doubtless become controlled, and later, under influences which cannot be defined, has presumably taken on renewed activity. Again, occasionally in a case of phthisis pulmonalis there develops some acute cerebral event, for example, an ocular paralysis, and after an interval, it may be of several weeks, the symptoms of a generalised meningitis appear. Here, also, the probabilities would appear to be that a limited infection has resulted from the entrance of the irritant into the blood-stream, that it has for a time remained limited, and then has given rise to a spreading infection by continuity or contiguity of tissue. In the cases

recorded in this paper it is suggested that the order of events is similar to that just described, with this trifling exception, that the period of limitation or quiescence of the primary cerebral infection was of less duration, being indeed a matter of days rather than of weeks. In this way it seems possible to explain both the early and local distribution of the paralysis and convulsions and the subsequent development, after an interval of quiescence, of the usual clinical features of the disease.

(Two case records with histories similar to those described in this paper are reported in an article by Dr. L. W. Sauer in the *Archives of Pediatrics*, December, 1914.)

DISCUSSION.

Dr. HARRY CAMPBELL desired to congratulate Dr. Hawthorne on his most interesting and lucid exposition; it was delightful to hear a case presented in so simple and understandable a fashion. He ventured to suggest, as an alternative explanation of these two cases, the possible presence of a latent tuberculous tumour, which suddenly took on active development, and subsequently led to a generalised tuberculosis of the meninges. Still, he acknowledged the ingenuity of Dr. Hawthorne's suggestion.

Dr. ERIC PRITCHARD wished to refer to one small point in this exceedingly interesting paper. The author suggested that such conditions might be due to embolisms from a lesion in a remote part; he (the speaker) therefore asked whether, in the second case quoted, there was any evidence of a primary focus in any other part of the body. It was somewhat difficult to understand how an embolism could reach the brain unless it arose from the pulmonic area; it would have to go through the lung in the first place, and cause an infarct there. It seemed to him that Dr. Hawthorne's very ingenious hypothesis would apply more to cases in which there was a disturbance of some, possibly latent, focus in the lungs or brain itself, which caused an embolism in some fresh situation.

Dr. E. G. L. GOFFE desired to mention a case of interest in connexion with the present one. A man, aged about 28 years, was certified as suffering from cerebrospinal meningitis. He was in the hospital four days, and gradually developed a condition of coma, followed by hemiplegia. Some cerebrospinal fluid was withdrawn, and a Gram-negative diplococcus was found. The man died about twenty-four hours after the hemiplegia came on. About six hours before death he coughed up a good deal of pus. The patient had been under treatment for eighteen months at the hands of his doctor, who had arrived at no definite diagnosis. Caseating tuberculous glands were found in the mesentery and the mediastinum; and there was a cavity, the size of a lemon, in each lung. No lesion macroscopically discernible could be found in the brain or meninges other than congestion of the blood-vessels.

Dr. HAWTHORNE, in answer to Dr. Harry Campbell's comments, said that his controversial weapons were somewhat blunted seeing that he made a similar suggestion in Dr. Pritchard's case. But in his (the speaker's) second case there was a post-mortem examination, and no tubercular focus, such as might lead to meningitis, was found. The difficulty which Dr. Pritchard raised was one which came up perennially in reference to the spread of tuberculous meningitis. While everyone allowed that the development was secondary to a primary focus, the difficulty was to understand how it came about that the embolus had reached the brain while there was no evidence in the lung. But was it not a point on which anatomists agreed that the pulmonary capillaries were of somewhat larger calibre than were the systemic capillaries? In this event, an embolus could pass through the pulmonary capillaries and yet be arrested by the systemic. He agreed that it was not easy, in many cases of tuberculous meningitis, whether the hemiplegia was early or late, to put one's finger upon a localised mass and say, "Here is sufficient to account for the existence of a localised paralysis."

PROCEEDINGS
OF THE
ROYAL SOCIETY OF MEDICINE

VOLUME THE EIGHTH

COMPRISING THE REPORT OF THE PROCEEDINGS FOR THE
SESSION 1914-15

CLINICAL SECTION



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CLINICAL SECTION.

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The Society does not hold itself in any way responsible for the statements made or the views put forward in the various papers.

Clinical Section.

November 13, 1914.

Mr. CHARTERS J. SYMONDS, M.S., President of the Section, in the Chair.

THE PRESIDENT explained the arrangements that had been made as to the meetings for the coming Session owing to the War, and asked the members of the Section to communicate with the Secretaries if they were able to suggest any subject to which a meeting might be entirely devoted.

Probable Injury of the Crucial Ligaments.

By ALAN H. TODD, M.S.

MR. C. C., aged 30, injured his knee during a football match when he was aged 15; he does not remember quite what happened, but he had to be carried off the field. Nothing was very obviously wrong with the joint at the time, and the school doctor sent him into school next day. After walking on it, however, it became very swollen and painful, and he had to remain in bed for ten days. No splint was used. The inflammation subsided.

For some years after this the joint felt weak, and the patient says that it always seemed to him as if it might at any moment undergo hyperextension. Sometimes it would become swollen and distended, and then walking would be painful. Occasionally it would "go out," in which case there would be severe pain. Sometimes it would reduce with an audible click. The joint, moreover, sometimes became locked, but he has never discovered a loose body in it. He has always been able to reduce the knee by slow, forced extension, but he has noticed that if he wears an elastic kneecap this prevents his "getting the joint

2 Todd: *Probable Injury of Crucial Ligaments*

back" unless he first removes the cap. At one time, soon after he left school, he used to get attacks of synovitis every few weeks, but lately these have been much less frequent. In the intervals between the

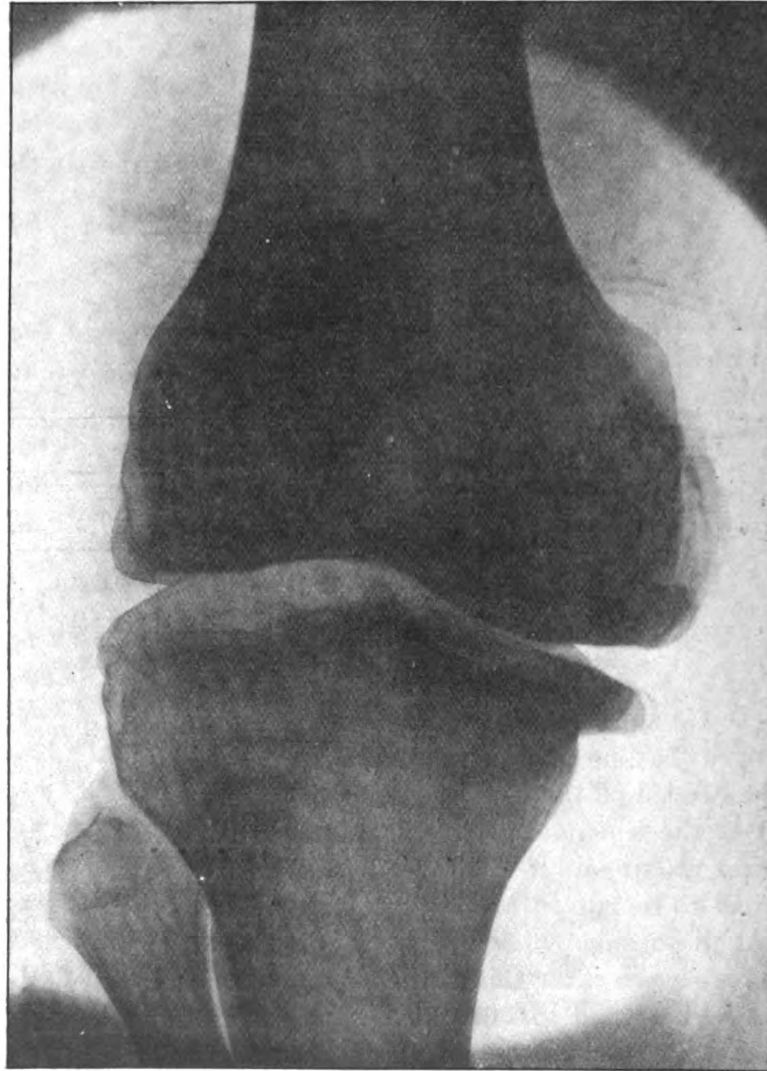


FIG. 1.

Showing marked osteo-arthritic changes, and attrition of internal tuberosity, probably explaining the progressing genu varum.

attacks he has been able to lead an active, athletic life, playing a good game of golf or tennis daily, though he has always had to avoid turning round too suddenly.

Eleven years ago, when out shooting, he jumped on some muddy ground and twisted the knee badly. It was very painful, and a doctor



FIG. 2.

Lateral view, showing osteophytes.

put it in plaster of Paris, fully extended, for three weeks. After this he wore a patella-clamp for a while, but as it failed to prevent the joint "going out," he discarded it.

D—6a

4 Wynter & Bland-Sutton: *Acholuric Jaundice ; Splenectomy*

A slight genu varum slowly developed after the original accident, but lately it has obviously increased. The patient walks with a slight limp, but there is no laxity of the joint apparent; he seems to have unconsciously acquired the habit of keeping the thigh muscles well braced up when walking. When he is sitting down he can make the leg slide forwards on the femoral condyles at will. There is slight limitation of the extremes of extension and flexion, and some lateral mobility of the joint. Although there is no evidence of free fluid within the joint, or of hypertrophy of the sub-synovial tissue, the circumference of the right knee is $\frac{3}{4}$ in. greater than that of the left. This seems to be mainly due to several large osteophytes which have formed around the internal tuberosity of the tibia and the internal condyle of the femur, at their margins. They are well seen in Mr. Shenton's skiagrams.

The skiagram rather suggests that there is a fracture of the spine of the tibia, a condition very frequently associated with laceration or rupture of the crucial ligament; but this point is difficult to decide, on account of the presence of so many osteophytes around the articular margins. It is difficult to say which ligament (if any) is affected, but inasmuch as the tibia dislocates forwards when it "goes out," it is more probably the anterior. It is well known that in tuberculous arthritis, when the posterior ligament is destroyed, the leg goes backwards. The marked formation of osteophytes and attrition of the tibial tuberosity rather suggest early neuropathic disease as a possibility, but the eyes react normally and the tendon-jerks are all normal.

Acholuric Jaundice ; Splenectomy.

By W. ESSEX WYNTER, M.D., and Sir JOHN BLAND-SUTTON,
F.R.C.S.

C. P., AGED 26, suffered with jaundice and anæmia all his life, with exacerbations at frequent intervals. His mother, maternal grandfather, an aunt and an uncle on the mother's side were similarly affected. The yellowness of the skin apparently increased during the day, being more marked in the evening than in the morning. He had been worse during the past two years, losing strength and $2\frac{1}{2}$ st. in weight. Physical examination disclosed no abnormality of the thoracic or abdominal viscera, except slight increase in the dullness over the spleen,

which could just be felt on deep inspiration. The urine was clear, of a deep red-brown, and had a specific gravity of 1025. There were no abnormal constituents, and both Gerhardt's and the zinc chloride tests for pathological urobilin were negative. Hæmolysis occurred in 0.45 per cent. saline solution, which is about normal. White cells (5,200) showed lymphocytes, 39.4 per cent.; polymorphonuclears, 57.5 per cent.; eosinophiles, 2.5 per cent. Temperature was 99° to 100° F. before operation.

The spleen was removed on July 17, 1914, several ligatures being applied close to the hilum, but the main artery left unmolested. There were no complications and the temperature became normal in the course of ten days.

Wassermann's reaction was reported positive before operation and negative after. Fourteen weeks later the reaction was considered doubtful.

Patient left hospital on August 21. Red cells were then 1,880,000; white cells, 13,000. Resistance of red cells was greater than normal. White cell count on July 28 showed lymphocytes, 24 per cent.; hyaline cells, 2 per cent.; polymorphonuclears, 73 per cent.; and eosinophiles, 1 per cent.

November 7: Patient has put on 1½ st. during convalescence, and has gained strength and been free from attacks of jaundice. Blood count: Hæmoglobin, 80 per cent.; red corpuscles, 3,700,000 per cubic millimetre; leucocytes, 18,000 per cubic millimetre; neutrophile polymorphonuclears, 51 per cent.; lymphocytes, 33 per cent.; transitional and hyaline cells, 11 per cent.; eosinophile polymorphonuclears, 4 per cent.; mast cells, 1 per cent. Scanty normoblasts are present, also a considerable number of red corpuscles show nuclear fragments (Howell-Jolly bodies). Resistance of red corpuscles to hypotonic NaCl solution: A faint trace of lysis, 0.45 per cent. NaCl; marked lysis, 0.3 per cent. NaCl. Two presumably normal bloods tested at the same time showed a trace of lysis with 0.45 per cent. NaCl, and almost complete lysis with 0.4 per cent.; thus the patient's red cells are of more than average resistance. Wassermann reaction suspicious, but could not be called positive.

Dr. ALEXANDER MORISON mentioned two cases of acholuric jaundice which were under his care at the Great Northern Central Hospital. Both were females, aged respectively 14 and 9. They were members of a family of five children, in three of whom, as well as in the father, there was enlargement of the spleen. In the elder of his patients the spleen was much enlarged, and in the younger definitely, but less so. Both, moreover, had had rheumatic

6 Wynter & Bland-Sutton: *Splenic Anæmia; Splenectomy*

fever and acquired mitral valvular disease. Their present red blood count verged on 3,000,000, but the elder, who had been under his care on a former occasion six years previously, had at that time a count of red cells below 1,000,000. The condition of the younger was not urgent, but the elder had not improved during her present stay in hospital, and X-ray exposure had had no effect in reducing the size of the spleen. In view of the fact that she had improved since her former examination, and remembering that patients in such cases might live long, he inquired whether the benefit likely to be derived from splenectomy would justify that operation being undertaken notwithstanding her being the subject of mitral valvular disease. He did not himself consider that the presence of the cardiac condition contra-indicated operation if the procedure was calculated materially to improve the blood state.

Splenic Anæmia; Splenectomy.

By W. ESSEX WYNTER, M.D., and Sir JOHN BLAND-SUTTON,
F.R.C.S.

S. C., AGED 13, had been ailing for six weeks, suffering from lassitude and some enlarged glands. He was sent for treatment by the school doctor, and was thought at first to have Hodgkin's disease, but improved under treatment as an out-patient.

On admission on July 4 the boy was seen to be anæmic and thin, but made no definite complaint of pain or discomfort. The thoracic and abdominal viscera appeared normal apart from the spleen, which was much enlarged and extended $4\frac{1}{2}$ in. below the left costal margin and inwards to the middle line. Small, firm glands could be detected in the neck, axillæ, and groins. The thyroid was enlarged, especially the isthmus. Blood count: Red cells, 4,200,000; white cells, 2,600; hæmoglobin, 60 per cent. A differential count showed no disturbance of the ordinary proportion in white cells. Temperature, 99° F. Urine normal.

Splenectomy was performed on July 11. There were firm adhesions, separation of which involved considerable bleeding and some injury to the diaphragm. A gauze drain was inserted but the wound healed readily, and stitches were removed on the eleventh day. The spleen was large and firm. For ten days after operation the temperature rose to 102° and 103° F., and thereafter gradually subsided. Movement of the diaphragm was arrested especially on the left side, and there was

collapse of the lower lobes of the lungs with bronchitis. This gradually cleared and the patient was convalescent by August 21.

Blood count: Red cells, 3,650,000; white, 21,000; polymorphonuclears, 48·5 per cent.; lymphocytes, 21 per cent.; eosinophiles, 5 per cent.; transitionals, 25·5 per cent.

November 11, 1914.—Blood count: Red cells, 4,800,000; white cells, 8,000; hæmoglobin, 62 per cent.

Differential count: Polymorphonuclears, 36 per cent.; lymphocytes, 33·5 per cent.; hyaline and transitionals, 26 per cent.; eosinophiles, 4 per cent.; mast cells, 0·5 per cent.

Myositis Ossificans (Juvenile Progressive Type).

By G. HELY-HUTCHINSON ALMOND, M.B.

G. H., AGED 7, was healthy as a baby. Adenoids were removed at the age of 3½, and an extensive operation for the removal of glands in the left side of the neck about a year later. Fifteen months ago (when aged 5½) a swelling appeared on the anterior surface of her left ankle which rapidly subsided. Shortly afterwards her right hip began to get stiff, and next the left became so; the stiffness was intermittent at first, but the joints have gradually become more fixed. She can now only walk about 100 yards, and tilts her pelvis up on either side with each step. Flexion of knees and thighs is limited. She is very thin and there is an almost complete absence of subcutaneous fat. The skin is thin and over the face and limbs it appears to be stretched and adherent to the subcutaneous structures, so that it cannot be pulled up in wrinkles, and together with the subjacent muscles it gives a feeling of toughness to the part. There is an irregular scar on the left side of the neck, the result of her operation and of subsequent ulcers and sinuses. There are several hard, enlarged cervical glands. Over the dorsum of the hands and wrists the skin is erythematous and rough. The muscles are badly developed and tough. There is a slight list of the spine to the left, with corresponding curves and raising of the right shoulder. The tibiæ are bowed in a forward direction. There is an absence of microdactyly. There is a small patch of ossification close to the insertion of the biceps of the left arm, and a patch of hardness close to the origin of the biceps of the right. The ilio-tibial band on the left side is ossified from its origin to its insertion. The hamstrings of the left

thigh are ossified, the skiagram giving the appearance of a calcified shell enclosing the muscles. There is a lozenge-shaped patch of hardness in the outer belly of the left gastrocnemius. No definite patches of hardness or ossification can be actually detected in the muscles of the spine or trunk.



FIG. 1.

Myositis ossificans. Right thigh.

The skiagrams were kindly taken for me by Dr. Bowker.

The case demonstrates clearly that in this disorder ossification occurs not in the muscles themselves but in the fibrous and connective tissues. This is well shown in the involvement of the ilio-tibial band and in the commencing ossification of the insertion of the biceps, and

also in the fact that the shadows in the hamstrings point to a sheathing of the muscles rather than the ossification of the muscles themselves. The fact that the onset appeared shortly after an operation is suggestive of the possibility of an infective origin in this type of case. Collins, of

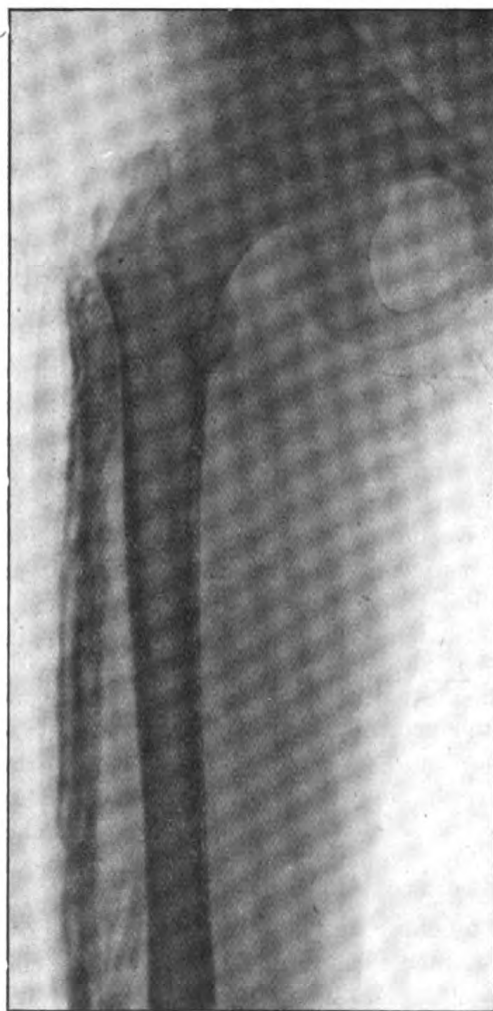


FIG. 2.

Myositis ossificans. Left thigh.

Sydenham,¹ published a case following the appearance of (?) glands in the neck, and Carpenter and Edmunds² a case commencing after the removal of tonsils.

¹ Collins, *Lancet*, 1906, i, p. 1356.

² Carpenter and Edmunds, *Rep. Soc. Study Dis. in Child.*, 1902, ii, p. 96.

DISCUSSION.

Dr. F. PARKES WEBER said that, with Mr. A. Compton, he had written an account of a case of the disease in a younger (female) child, which would appear in the December number of the *British Journal of Children's Diseases*. He thought that the disease was not a true inflammatory one, but a progressive ossifying hyperplasia of the connective tissue and fasciæ of the striped skeletal muscles. The tendency to this hyperplasia was congenital, but not hereditary, though the commencement of the disease might be delayed. Traumata, even slight traumata, played a great part as exciting causes of the exacerbations, and a great object in the treatment of sufferers from the disease was, as far as possible, to withhold them from any likelihood of traumata. The microscopical appearances of the affected parts, the relative absence of constitutional symptoms during the local exacerbations, and (finally) the peculiar deformity of the big toes ("hallux valgus" with microdactyly) which was found present in many cases, all spoke against adopting any theory of infection to account for the disease. Everything pointed to the disease arising on a peculiar congenitally predisposed soil. Fibrolysin injections had led to the local formation of bone at the site of the injections. The bony plates might develop at sites far removed from the periosteum—for instance, in the middle portion of the fascia covering the vastus externus muscle of the thigh. In ordinary "localised traumatic myositis ossificans," on the other hand, the ossification appeared to spread from the periosteal attachments of muscles and tendons ("rider's bone," &c.), at the site of traumata, as if osteoblasts and osteoclasts had been set loose from the periosteum as the result of the traumata.

Mr. W. G. SPENCER said that Mr. Hely-Hutchinson Almond's case was a very interesting and exceptional one. It appeared to differ from the type of myositis ossificans, an early case of which was described by the late Dr. Simpson, of Lincoln, in which, along with digital deformities, there was ossification in the thoracic and spinal muscles. The digital deformities suggested that this type started as a congenital lesion. In traumatic myositis ossificans there was a periosteal injury, and ossification extended from the periosteum into the tendon. In the present case the clinical examination with X-ray photographs seemed to show that the principal change at the moment was a calcification of fasciæ and aponeuroses in the limbs. Mr. Spencer considered that the most likely explanation was that the disease was the result of septic infection.

Dermatitis Herpetiformis ; Tubercular Glands in the Neck.

By W. J. MIDELTON.

C. S., GIRL, aged 9. Born healthy. In good health up to the age of 3, then suffered from scarlet fever. An eruption occurred after the original rash died away; not recognised at first, but later pronounced dermatitis herpetiformis by Dr. P. Abraham. Measles twice and pertussis once subsequently. The dermatitis persisted. Twice admitted to West London Hospital. Free from the dermatitis from beginning of August to end of September, 1911; then had recurrence, which persisted. I commenced counter-irritation at the end of February, 1912. At that time the pustules, blebs, and scabs were well marked, chiefly on inner aspect of upper third of thighs and spreading on to the abdomen. Few spots elsewhere. Recovered within three weeks. Occasional slight relapses of short duration since that time.

About five years ago some tubercular glands in the neck were operated on and sinuses persisted for over two years. These eventually healed well, but one scar remained bluish-red and had whitish specks in it, suggesting lupus vulgaris.

In May, 1913, she had a wound on the right wrist which became septic, but soon healed under treatment. In August, 1913, one or two glands in the neck enlarged and one small abscess formed. This was incised, and complete healing took place in a few months. Other glands became inflamed, but no definite abscess occurred. This fact is, in my opinion, significant as showing greatly increased resistance.

No sign of the dermatitis for over eighteen months now.

Dermatitis Herpetiformis ; Chronic Bronchial Catarrh.

By W. J. MIDELTON.

A. H., MALE, aged 9. Whooping-cough at the age of 10 months. Measles and broncho-pneumonia at the age of $2\frac{1}{2}$ years, "weak on the chest" ever since. Present illness began in February, 1912. Attended at the West London Hospital in May, 1912. Treatment by means of continuous counter-irritation commenced in August, 1912; this has

been carried out once a week ever since. By the end of December the disease became much modified and blebs ceased to form. In April, 1913, a few blebs formed but they soon cleared away. From time to time there is a mild outbreak if the patient has a bad cold, but the treatment seems to check the eruption and the boy's general health has much improved.

Severe Neuritis following Sepsis.

By W. J. MIDEルトON.

C. K., AGED 42, gamekeeper.

Family history : Nothing important. Father alive, aged 90, active. Occasional attacks of influenza.

Previous history : While walking through some woods in the early part of 1913 he was pricked on the chin by a thorn. An abscess formed. Soon after numerous other abscesses formed on arms and trunk. He stated that "some were as large as a goose's egg," and that "scores were lanced by the local doctor." Patient became very weak and mentally depressed, especially as, in addition to his physical suffering, he and his family endured privation and his wife became blind. He thinks a cow suffering from eczema must have scratched herself with the thorn that pricked him.

Patient attended at St. Bartholomew's Hospital in April, 1913, and was treated by means of staphylococcic vaccines up to a dose of 500,000,000. Abscesses ceased to form. In June the left arm became intensely painful and eventually became wasted, stiff, and useless. He was admitted to hospital and the arm was forcibly moved three separate times under anaesthesia. No improvement resulted. Continuous counter-irritation was commenced in November, 1913. Multiple puncture and irritants. Applications made once a week on various parts of trunk and arms in turn.

In April, 1914, distinct improvement was noticed. In June, 1914, patient returned to work with a useful arm. Often up all night watching pheasants. General health excellent, and spirits good.

Treated in conjunction with Mr. R. C. Elmslie in the Orthopaedic Department of St. Bartholomew's Hospital.

Polyarthrititis and Severe Neuritis.

By W. J. MIDELTON.

J. Y., MALE, aged 48.

Family history : Mother died at the age of 58, father at that of 73, of senile decay.

Patient's history : Typhoid at the age of 12. Influenza ten years ago, and four times since. Much weakened. Four years ago severe headaches, mostly on right side. A good deal of business worry since. A year ago pains occurred in arms, and headaches returned ; pains also in legs, at times severe, lately very severe indeed. Joints of fingers swelled, also knee-joints to some extent. Some slight muscular wasting, especially of interossei. At times almost helpless. No drugs were of use in relieving the pain. Knee-jerks absent.

Treatment by means of blisters and savin ointment commenced on May 8, 1913. A blister, 4 in. by 4 in., was applied over the upper dorsal vertebræ and left on twelve hours. This was then removed and a raw surface left. Savin ointment then applied on lint over the raw place, and left on twelve hours. By repeating this dressing regularly every twelve hours, a free, purulent discharge was maintained for twelve days. Zinc ointment was then applied, and the raw surface healed rapidly and soundly within three days. After a few days a similar process was carried out in the dorso-lumbar region. The patient became free from pain and rapidly regained his health. He returned to work of a very strenuous nature at the end of July, 1913. This was a very striking recovery under the circumstances, which have been only partially described above.

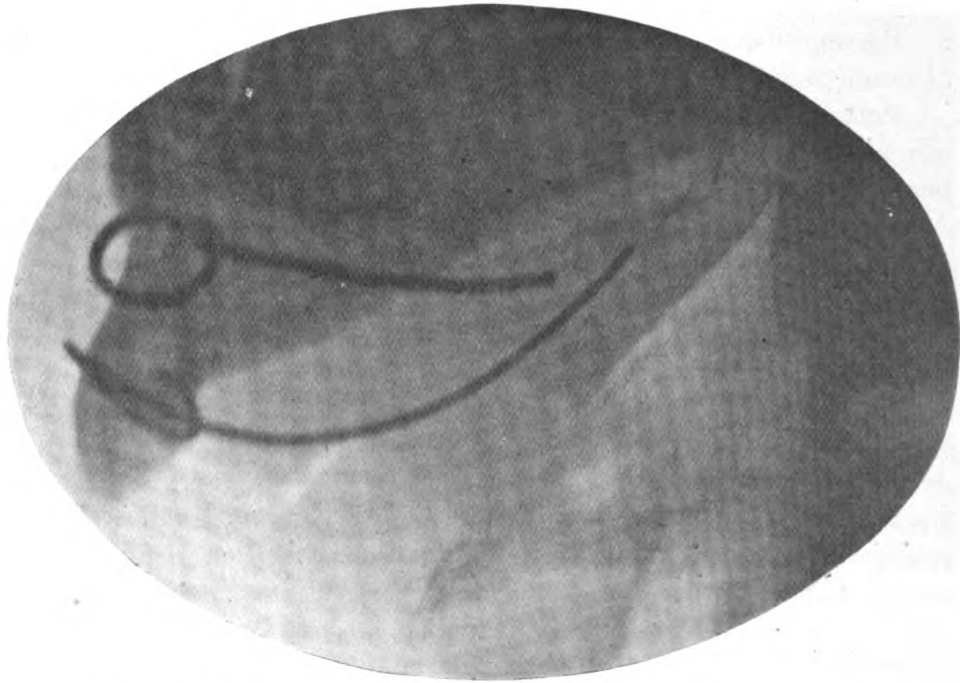
Epithelioma of Alveolar Process of Mandible ; Removal by Operation.

By Sir FREDERIC EVE, F.R.C.S.

J. E. B., MALE, aged 63. Nine weeks ago a very extensive epithelioma, originating in the posterior part of the alveolus of the left side of the mandible, was removed by excising the lower jaw from

14 Eve: *Epithelioma of Alveolar Process of Mandible*

the bases of the coronoid process and the condyle to the left side of the symphysis. The gap was filled in by two phosphor-bronze wires. The posterior ends of the wires were only inserted into holes bored in the jaw, while the anterior ends were twisted. This was to allow of their removal. The upper wire has been removed; the lower is buried.



Skiagram of a case in which the left side of the mandible was removed for an epithelioma. Two phosphor-bronze wires are seen; the distal ends are twisted in the symphysis, and the proximal ends are inserted in the bases of the coronoid process and the condyle.

The patient has been able to open his mouth freely since the operation and there is no displacement. The speaker mentioned one case operated on by him many years ago, in which the wires became completely buried in dense fibrous tissue.

Hemi-obesity in an otherwise Healthy Girl, aged 12 Months.

By H. BATTY SHAW, M.D.

THE child was apparently quite normal at birth. At the age of 3 months the mother noticed that the left arm and leg were much



FIG. 1.

Case of hemi-obesity (seen from front).

thicker than the right ones. As the child grew this condition became more obvious, so that now the circumference of the left forearm is 1 in. greater than the right; that of the upper part of the left thigh $1\frac{1}{2}$ in. greater than the right, and the circumference of the left leg is $\frac{3}{4}$ in.

greater than that of the opposite one. The child is the second of the parents' children, was full-time at birth and was nursed till 10 months of age. The elder child is now aged 7, and in infancy was quite normal. The father is a very stout man, the mother rather

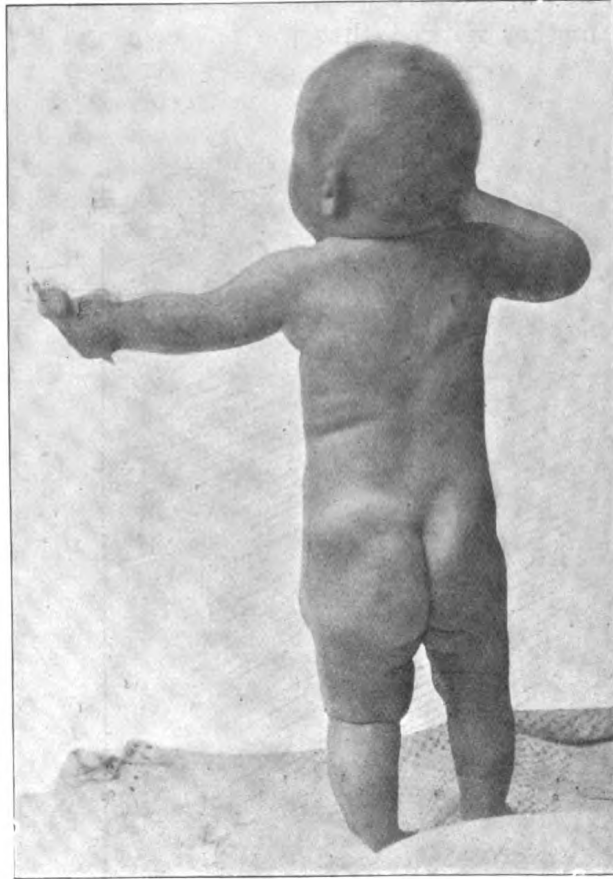


FIG. 2.

Case of hemi-obesity (seen from back).

slender. There is no other example of such an anomaly in the family as is presented by this case.

The child is very vivacious and good-tempered. The enlargement of the left limbs is apparently due simply to increase of the subcutaneous fat which is noticeable on pinching up the skin; there is no alteration in length of the limbs nor does the change seem to involve

the deeper structures. The increase of the subcutaneous fat is also present over the left half of the chest and abdomen back and front. There is a slight increase of the fat of the left side of the face, including the ear; the left half of the tongue and left labium majus are normal. Wherever present, the increase of fat is uniform, there is no tendency of the fat increase to be localised as in lipomata (*see* figs. 1 and 2).

A similar case has been described and figured by Dr. Robert Hutchison as one of "false" hemi-hypertrophy in the *British Journal of Children's Diseases*, June, 1904.¹ At the post-mortem of his case, which died of pneumonia and empyema, the enlargement was shown to be due to increase of subcutaneous fat only, but the left kidney, left suprarenal and left testicle were heavier than the opposite organs, and the left lobe of the thymus was decidedly larger than the right. It is impossible to say in the present case whether these organs are similarly affected.

Dr. F. PARKES WEBER thought that in most true cases of hemi-hypertrophy there was increased length, as well as increased breadth, of the affected limbs. Cases like those of Dr. Batty Shaw and the one described by Dr. R. Hutchison, in which the affected limbs were not at all longer than the unaffected limbs, ought to be sharply distinguished.

Case of Retroperitoneal Prolapse of the Spleen into the Left Loin.

By W. G. SPENCER, M.S.

THE spleen has its origin in the retroperitoneal tissue, but it subsequently develops a complete covering of the peritoneum. A displacement from its position is then attended by an elongation of the pedicle and the organ has been often found floating, or fixed by secondary intraperitoneal adhesions, either in the iliac region or in the pelvis. No part of the main spleen remains behind the peritoneum, although accessory spleens or splenuli may be retroperitoneal. The following exception to the rule has recently come under my notice:—

F. W., aged 32, married, but never pregnant, menstruation regular, no previous illness nor injury, was admitted to the Westminster

¹ *Brit. Journ. Child. Dis.*, 1904, i, p. 258.

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Hospital on March 2, 1914, complaining of pain in the left loin and of a lump in the same region, which, as she said, "comes and goes." In November, 1913, she was suddenly seized with a severe contracting pain and felt a swelling in the left lumbar region. The pain continued in the left loin for twenty-four hours and spread round to the back. She vomited repeatedly, the vomiting occurring with effort and an increase of pain. The vomit consisted of mucus containing black specks, but she did not recognise any blood. The urine during this period was diminished in quantity and was dark in colour, but there was no pain on micturition. After twenty-four hours the pain ceased and she could no longer feel the lump. Since the first, she has had eight similar attacks: all she could say about them was that they occurred "when she was upset." She had lost much in weight and become thin and pale, although her digestion was good between attacks.

On examination, the skin over the left half of the abdomen was seen to be discoloured, as the result of scalds by hot-water bottles applied to relieve pain during the attacks. There was deep tenderness to palpation in the left lumbar region, which was occupied by an elastic swelling with a rounded outline; it was dull on percussion and lay behind the descending colon. Nothing else was discovered in the abdomen, but the normal splenic dullness was not particularly noted. The urine was normal. On X-ray examination an opacity was seen to occupy the left loin, which terminated below in a round outline, and this was recognised to be the lower pole of the kidney, whilst the opacity above was taken to be the upper part of the kidney distended by hydronephrosis.

On March 3, the patient having been placed on the right side, lying across a sandbag, I made an incision vertically downwards along the outer border of the erector spinæ, and the incision was continued horizontally forwards above the crest of the ilium. The incision included the lumbo-costal ligament, and then the elastic swelling could be felt filling the loin but enclosed in dense inflammatory tissue. I supposed that I was dividing a very much thickened perirenal capsule in order to expose a hydronephrotic kidney, when I found that I had torn widely into the pulp of a vascular spleen. It was then necessary to check hæmorrhage by sponge pressure and to pass the hand up in order to grasp the splenic pedicle. The convex aspect of the spleen including the notch was intimately united with the retroperitoneal tissues of the loin, which had to be cut round until the spleen could be brought out of the wound. Then the pedicle came into view and I

recognised, close by, the tail of the pancreas, the great curvature of the stomach and the splenic flexure of the colon, all apparently normal. Next the splenic pedicle was securely ligatured and the spleen cut away. It must have been about three times the normal size before blood had escaped, for after removal it was found more than twice the size of the normal spleen; otherwise the spleen was unaltered. It was only after removal of the spleen that I could find the left kidney lying between the crest of the ilium and brim of the pelvis. The kidney appeared quite normal, its pelvis was in no way dilated, and it was fixed up in position in the loin. The patient recovered without any disturbance; no change was detected in the blood, and she was discharged thirty days after the operation.

This appears to be a case of prolapse of the spleen in which some exceptional variation in the region of the peritoneum must have occurred causing the spleen to remain retroperitoneal. It cannot be said that it was pulled down by the kidney, rather the reverse, the kidney had been pushed down; for whilst isolating and removing the spleen the kidney was not seen, so there could have been no connecting band.

The position in which the patient was placed on the right side across a sandbag undoubtedly made the spleen bulge towards the lumbar wound, but the spleen occupied the lumbar region beforehand, as shown both by palpation and by X-ray examination.

As for a more conservative procedure, such as the fixation of the spleen in position, in this case the spleen was enlarged and filled the loin, so that the kidney could not be found until the spleen was removed out of the way. Moreover, the spleen could not be freed from its abnormal position without tearing into the friable pulp.

Ehrich¹ recorded two cases in which the spleen was found behind the peritoneum of the left hypochondriac and lumbar regions. One case was under Professor Hildebrand and the other under Professor Müller, of Rostock. Both instances were in women with the left kidney hydro-nephrotic and the spleen was found included in a dense capsule common to it and the kidney.

As bearing upon this exceptional case, I may quote a paragraph from Dr. Suckling's treatise on movable kidney:² "In many cases

¹ Ehrich, "Ueber retroperitoneale Lage des Milz zugleich ein Beitrag zu Splenopexie," *Beiträge zur klinische Chirurgie*, Tübingen, 1904, xli, p. 446.

² Suckling, C. W., "Movable Kidney," Birmingham, 1909, p. 55.

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where the left kidney is movable, the lower border of the spleen can be distinctly felt and the organ is somewhat tender. Normally the kidney helps to keep the spleen in place; when it drops the spleen drops too. It is important to remember this, or a diagnosis of splenic disease might be made. The prolapse of the spleen is an important sign of a loose left kidney, even although the kidney cannot be palpated."

Clinical Section.

December 11, 1914.

Sir FREDERIC EVE, F.R.C.S., Vice-President of the Section,
in the Chair.

Case of Precordial Thoracostomy for Heart Disease.

By ALEXANDER MORISON, M.D.

P. W., MALE, aged 16, cabinet maker's apprentice, was stated to have been in good health and capable of athletic exercise until Christmas, 1913. He had played football weekly from October till December 25. After the last date he became breathless and had severe palpitation. No history of rheumatism or scarlet fever. He was admitted to Great Northern Central Hospital on February 9, 1914, with tachycardia, irregular action of the heart, breathlessness, and mitral systolic bruit. The area of cardiac dullness was much increased ; powerful heaving of left ribs and cartilages from the fourth to the sixth and movement of the sternum. He was rendered comfortable by rest and taking tincture of digitalis, but without any diminution of thoracic movement. Patient was discharged on April 28, 1914, feeling comfortable.

He was told to return if again distressed, for precordial thoracostomy. He did so on May 11, 1914, when again admitted. The operation was performed by Mr. Mower White on June 8, when $4\frac{1}{2}$ in. and $5\frac{1}{2}$ in. of the fifth and sixth ribs and cartilages respectively were removed, with much diminished movement of the thoracic cage. No costo-pericardial adhesions. Since comfortable, but still requiring tincture of digitalis.

He was advised to abandon previous occupation for a more sedentary calling, and is now a cashier in the City. Object of operation : Relieving enlarged heart of the labour of raising the chest wall.

Case of Achalasia of the Cardia (so-called Cardio-spasm).

By ARTHUR F. HERTZ, M.D.

C. M., FEMALE, aged 36, developed mitral stenosis as a result of acute rheumatism fifteen years ago. She has complained for ten years of pain under the lower part of the sternum and a choking sensation under the upper part whenever she eats. She has always had an impression that her food had difficulty in getting into her stomach. About two years ago she fell from a ladder and hit her chest ; since then she has constantly vomited part of the food she has eaten at every meal, which comes up quite undigested, but mixed with a considerable amount of mucous saliva. During the night she frequently awoke owing to regurgitation of her evening meal through her nose ; the food was now sour, especially if several hours had elapsed since the meal, in contrast to the food brought up during meals, which was never sour. The condition became steadily worse until nine weeks ago, when she ceased to be able to keep down any solid food at all. During the three days before I first saw her, six weeks ago, no food had been retained at all.

An X-ray examination showed that the whole œsophagus was dilated, the obstruction being at the cardiac orifice of the stomach (fig. 1). There was violent peristalsis in the œsophagus, but the food only trickled with extreme slowness into the stomach.

The condition was diagnosed as *achalasia of the cardia*, and a mercury tube was passed (fig. 2). This met with no obstruction at the cardia, and the patient has since been able to retain her food, unless it is insufficiently masticated, by passing the tube immediately before each meal.

The term "achalasia" (*a*, not ; χαλάω, I relax) was coined for me by Sir Cooper Perry to replace the term "spasm," which is incorrect for the following reasons :—



FIG. 1.

Skiagram by Dr. Lindsay Locke, showing dilated œsophagus filled with opaque meal.

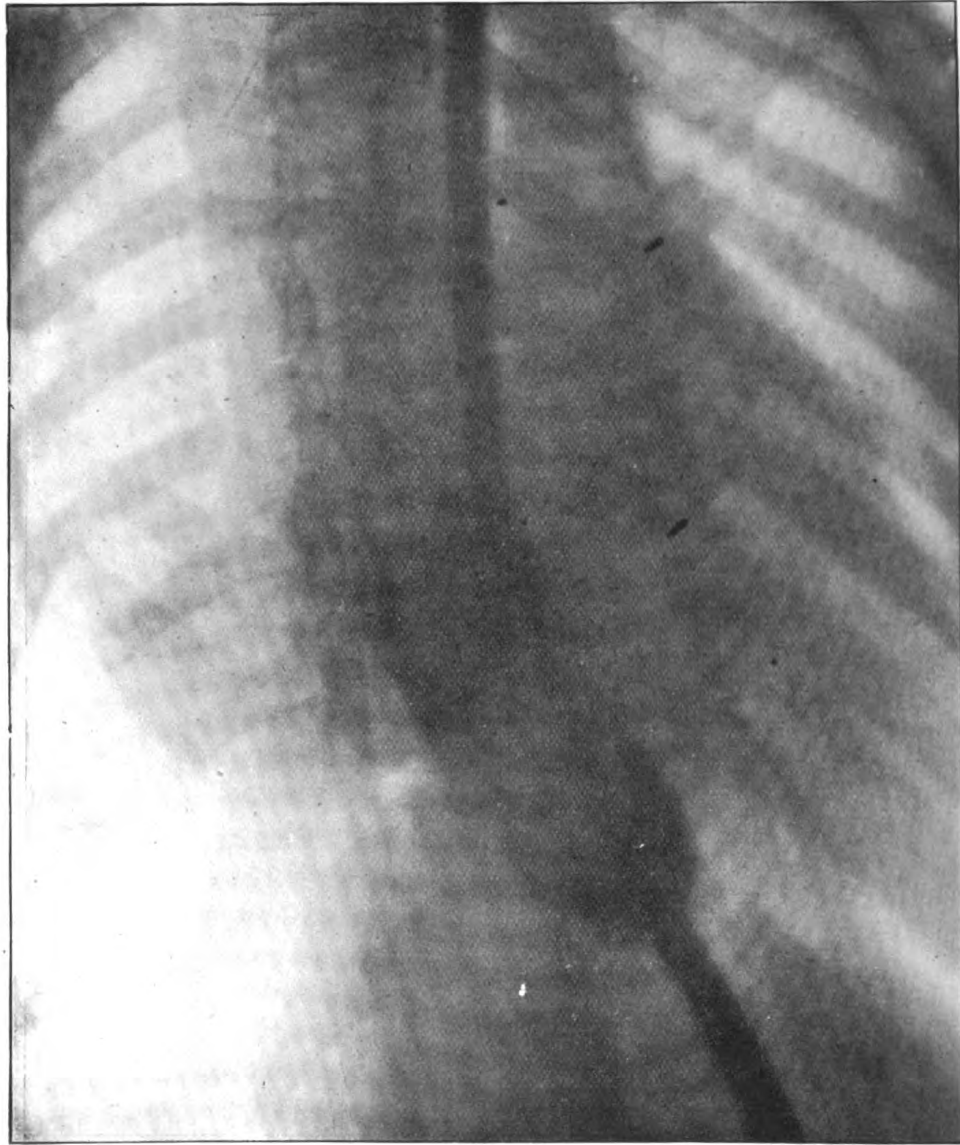


FIG. 2.

Skiagram by Dr. Lindsay Locke, taken directly after fig. 1, showing mercury tube passing through cardia into the stomach.

(1) Hypertrophy of the cardiac sphincter is never observed after death, even if the obstruction has lasted for twenty or more years, although long-continued spasm would necessarily lead to hypertrophy.

(2) The mercury tube passes without any sense of obstruction through the cardia, which would be impossible if a spasm were present.

(3) The mercury tube can be withdrawn without any difficulty, whereas it would be grasped by the sphincter were cardio-spasm really present.

I believe that the condition is due to the absence of the normal relaxation of the cardia, which should occur when each peristaltic wave reaches it.¹ Similarly, many cases of so-called pylorospasm are due to pyloric achalasia, and ileo-cæcal achalasia is the most frequent cause of ileal stasis.

¹ A somewhat similar explanation was suggested by Dr. H. D. Rolleston in 1896 (vide *Trans. Path. Soc.*, 1896, xlvii, p. 37).

**Gastric Ulcer ; Spontaneous Gastro-jejunostomy ; Perforation
of Gastro-jejunal Ulcer ; Operation ; Recovery.**

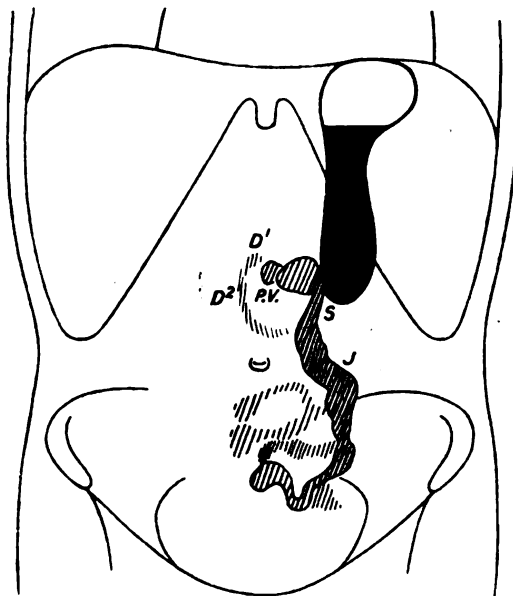
By ARTHUR F. HERTZ, M.D., and C. H. FAGGE, M.S.

MRS. S., aged 28, had suffered from indigestion for six years. Pain occurred from half to one hour after meals; vomiting, which had been particularly frequent during the last few months, relieved the pain. In 1910 she had a severe attack of hæmatemesis, after which she was kept in bed for some weeks, but the pain did not disappear completely. In 1913 she was again treated for gastric ulceration for eight weeks but with only partial relief. At the end of May, 1914, she was admitted into another hospital, where she remained for four weeks without any great improvement occurring. Up to this time no operation had been performed upon her.

At 1 a.m. on May 30, 1914, she was suddenly seized with a very violent pain in the epigastrium; there was no vomiting. She was admitted into Guy's Hospital, where she was at once seen by Dr. G. H. Hunt, who diagnosed perforation of a gastric ulcer. At 6 a.m. Mr. C. H. Fagge opened her abdomen by a right paramedian incision above the umbilicus; fluid escaped from the abdomen as soon as the peritoneum was opened. The most proximal loop of the jejunum was found to be adherent to the anterior surface of the stomach near the greater curvature for about 3 in., a small leakage from the stomach being found at one point anteriorly and to the right of the circumference of the adherent area. Thinking this was the ordinary condition of gastric perforation, in which other viscera become adherent in a natural effort at preventing diffuse peritonitis, an effort was made to separate the adherent intestine from the stomach, but this hypothesis was soon proved wrong, for the adhesions which peripherally were easily separated were found so firm towards the centre as clearly to be of more than a few hours' standing. On holding the stomach and jejunum between finger and thumb an opening with a thickened border could be felt between them. It was clear that the proximal loop of the jejunum passing up anteriorly to a very short, scanty omentum and transverse colon had become adherent to an old gastric ulcer; this latter had primarily perforated into the jejunum, producing an anterior

gastro-jejunostomy, the gastric ulcer thus becoming converted into a gastro-jejunal ulcer, which had secondarily perforated into the general peritoneal cavity. The perforation was covered over by increasing the area of adhesion of stomach to jejunum with two rows of catgut sutures; the omentum was sutured around this area so as to cover the whole ulcerated patch; the peritoneal cavity was drained suprapubically. The patient made an uneventful recovery, but for three weeks occult blood was still present in the fæces.

Since the patient left the hospital she has been perfectly well, not having had the slightest return of pain or sickness. When she was



Gastric ulcer ; spontaneous gastro-jejunostomy.

aged 20 she weighed 11 st., but before the operation her weight had fallen to just over 7 st. She now weighs 10 st. 12 lb. An X-ray examination on November 10, 1914, showed that the stomach is small and empties itself with extreme rapidity through the stoma, only a very small quantity of the food reaching the pyloric vestibule, and passing from this into the duodenum (*see figure*). The stomach was empty about twenty minutes after a barium meal, although normally at least three hours are required for the evacuation to take place.

Although in various accounts of gastric ulcer the possibility of

a gastro-jejunal fistula is mentioned, we have not been able to find a record of any definite case, and the Museum of the Royal College of Surgeons contains no specimen.

Mr. KELLOCK remarked on the curious pathological condition found at the operation—the jejunum adherent to the anterior wall of the stomach, for it would seem that some agency must have been at work to bring the jejunum forward round the transverse colon and through the great omentum, or else through both layers of transverse mesocolon; in fact, some pathological process must have brought the jejunum along the same path as one leads it when doing a gastro-jejunostomy.

Clinical Section.

February 12, 1915.

Mr. CHARTERS J. SYMONDS, M.S., President of the Section, in the Chair.

Splenomegaly with Anæmia and Hæmorrhages.

By JAMES GALLOWAY, M.D.

J. N., AGED $8\frac{1}{2}$, was observed by his mother to have a little swelling of the abdomen eighteen months ago. This enlargement of the abdomen has continued and has increased. He is said to have had an attack of jaundice about fifteen months ago; his complexion is said to have become paler, and a year ago a severe epistaxis occurred. Since that date there has been an eruption of small purpuric spots, and an attack of hæmatemesis a few days before he was admitted to Charing Cross Hospital in November, 1914. Since that date he has been under constant observation. At first his condition became worse, and there was another attack of hæmatemesis with copious melæna. The lad is pallid; has a slight degree of protrusion of the abdomen; the spleen is markedly enlarged, reaching the umbilicus; the lower edge of the liver can be felt below the costal margin, and this organ probably extends higher in the abdomen than is normal, probably it is enlarged. The blood has been frequently examined and the following reports are characteristic:—

December 18, 1914: Blood count—rouleaux and fibrin formation fair; red blood corpuscles, 2,900,000 per cubic millimetre; hæmoglobin, 30 per cent.; colour index, 0·5; white blood cells, 840 per cubic millimetre; polymorphonuclear leucocytes, 57·5 per cent.; small lymphocytes, 35 per cent.; large lymphocytes, 1·5 per cent.; eosinophiles, 1·5 per cent.; basophiles, 1 per cent.; large hyaline, 3·5 per cent.

January 12, 1915: Blood count—rouleaux formation poor, fibrin formation good; red blood corpuscles, 2,630,000 per cubic millimetre;

hæmoglobin, 30 per cent. ; colour index, 0·5 ; white blood cells, 860 per cubic millimetre ; polymorphonuclear leucocytes, 55 per cent. ; small lymphocytes, 35·5 per cent. ; large lymphocytes, 5 per cent. ; eosinophiles, 1·5 per cent. ; large hyaline, 3 per cent. ; slight poikilocytosis.

The fragility of the red blood cells was estimated on December 21 and was normal. There is no history nor indication of syphilis, and the Wassermann reaction is negative.

The family history : The father and mother appear to be healthy. There are three sisters and one brother who are in good health. An uncle on the father's side had hæmatemesis associated with a swollen abdomen, but has now recovered his health. An uncle on the mother's side has been treated for hæmatemesis and ascites.

The question of removal of the spleen arises in this case and has been carefully considered ; the chief contra-indication to operation was the slight enlargement of the liver, possibly due to cirrhosis of that organ, and the slight indication of ascites which seemed to be present.

DISCUSSION.

Dr. DE HAVILLAND HALL, on being called upon by the President, stated that his experience of the removal of the spleen for splenic anæmia was limited to one case. The operation, which was performed by Mr. W. G. Spencer, was quite satisfactory.

Dr. DAVID FORSYTH suggested that, in view of the patient's condition being not incompatible with a familial type of splenic enlargement, the parents and other members of the family should be physically examined. If, for example, it could be shown that a parent's spleen had been enlarged from childhood, this fact would be a counter-indication for operating on the patient.

Mediastinal Teratoma.

By H. MORRISTON DAVIES, M.C.

F. W., AGED 21, was admitted in March, 1913. Six weeks previously he had noticed a swelling over the upper part of the left chest, which increased rapidly in size, and became red and painful. He was admitted to the Lewisham Infirmary with a temperature of 104·8° F. The swelling was incised through the third space and pus escaped. It was noticed that the pus was of a peculiar consistency. A few days

later, as there was no improvement in the patient's condition, another opening was made in the anterior axillary line, portions of the fourth rib being excised. The general condition became worse, and there was expectoration of large quantities of offensive sputum. Some hairs were found in the discharge from the wound, and the condition was recognised as an infected dermoid. On March 22 he was transferred to my care. He was extremely emaciated, and in a condition of profound toxæmia. His temperature fluctuated between 102° F. and 104° F. The skin around the opening was excoriated, and there was slight bulging of the surrounding chest wall. There was a copious discharge of pus, sebaceous material, and occasionally hairs. The heart was displaced to the right, and there was cough and offensive expectoration. On March 25, under local anæsthesia, the third left costal cartilage was removed, and the finger-like processes of the teratoma could be seen. A cavity was found extending inwards to the right of the sternum, outwards to the anterior axillary line, downwards to the fourth space, and upwards to under the first cartilages on both sides. A week later, as drainage was inadequate, portions of the third and fourth left ribs were removed under open ether. The patient suffered very greatly from shock, but improved slightly during the succeeding weeks. On May 29 the left second costal cartilage was removed, the second and third right costal cartilages were divided, and the upper part of the body of the sternum was excised. On June 26 the teratoma was partially separated from the pericardium, and on August 28 further detachments were divided so as to give better drainage. These operations were done under chloroform anæsthesia, and were followed by great shock. By September 17 the patient was much better, and cough and expectoration had ceased. Between November 14 and January 19, 1914, the projecting portions of the teratoma were on five occasions excised under gas and oxygen. On June 16 I began to separate the main mass of the teratoma from its attachments to the pericardium, aorta, and surrounding structures; it required five operations under gas and oxygen before the mass was excised. This part of the growth measured 13 cm. by 8 cm. by 7.2 cm., half of which I show here to-night. It contains, in addition to stratified epithelium, hairs, sebaceous matter, mucous follicles, cartilage and bone, cysts containing mucus, and lined by ciliated columnar epithelium. A further portion of the epithelium was treated in the same way and excised on November 9; this measured 7 cm. by 5 cm. by 4 cm. There is at the present time, as far as I can make out, very little of the teratoma left. The granulations over the pericardium and other structures

32 Davies: *Bronchiectasis treated by Ligature of Artery*

are becoming rapidly covered with epithelium, and the cavity from which the teratoma was removed has become to a great extent obliterated, partly by the mediastinum and partly by the expansion of the lung.

**Bronchiectasis treated by Ligature of Branch of
Pulmonary Artery.**

By H. MORRISTON DAVIES, M.C.

E. B., AGED 17, was admitted in May, 1913. Seven years ago he had a severe attack of bronchitis, from which he "never properly recovered." During the previous year his cough was much worse and he expectorated large quantities of offensive sputum. Physical signs consisted of dullness and weak breath sounds over the right base, and coarse râles. The sputum contained many different forms of organisms, including streptothrices.

The lung was completely displaced by nitrogen, and, four days later (June 9), the right side of the chest was opened through the fourth intercostal space, and portions of the fourth and fifth ribs removed. The branch of the pulmonary artery going to the lower lobe was then tied at the root of the lobe. The patient was anæsthetised by infusion ether and the lung was kept partially expanded by my hyperatmospheric apparatus. As soon as the chest was opened the vagus was injected immediately above the hilum of the lung with 2 per cent. novocaine. The patient experienced practically no shock after the operation. The temperature rose on the third day, and 24 oz. of clear fluid were aspirated from the right side of the chest. On June 18 the temperature was still up, and turbid fluid, which contained streptococci, was now found in the pleural cavity. This was drained through an opening in the incision. Three days later, as the discharge and sputum were offensive, a counter-opening was made behind through the ninth rib under local anæsthesia.

From this time recovery was uneventful. By August 1 the sputum was reduced to about $\frac{1}{2}$ dr. only per diem, and a small sinus was present, and on August 15 he was discharged to the Schiff Home.

The patient has now been working as an hotel porter for many months. He tells me that he feels perfectly well and only occasionally coughs (two or three times a week).

The skiagram taken at the beginning of last year shows a shadow at the base of the lung, but in the one taken this year this shadow has greatly diminished, and the diaphragm is now visible for the first time since he came under my care.

DISCUSSION.

The PRESIDENT (Mr. C. J. Symonds, M.S.) asked whether the closure of the cavities might be due in part, if not altogether, to the cicatrisation after the local suppuration in the pleura.

Dr. DE HAVILLAND HALL congratulated Mr. Morriston Davies on the success of his operation. He asked whether the introduction of nitrogen into the pleural cavity and consequent collapse of the lung, as in cases of tuberculosis, would not also be useful in cases of bronchiectasis. He wondered how much of the benefit of the operation was due to the ligature of a branch of the pulmonary artery, and how much was due to the collapse of the lung.

Mr. MORRISTON DAVIES, in reply, stated that nitrogen displacement had been tried repeatedly as a method of treatment of bronchiectasis, but had been found to be beneficial only so long as complete collapse of the lung was maintained. It was of great value, however, as a preliminary to ligature of a branch of the pulmonary artery, or to the operation of rib mobilisation, as it led to an improvement in the patient's general condition by abolishing the retention of the secretions in the bronchi and the consequent toxæmia. He did not think that thickening of the pleura or cicatrisation of the surrounding structures accounted for the marked improvement in this case, as there was no evidence of such change in the skiagram.

Bronchiectasis treated by Rib Mobilisation (Wilm's).

By H. MORRISTON DAVIES, M.C.

N. N., AGED 15, deaf and dumb, was admitted in September, 1913, with extensive bronchiectasis involving the whole of the right side. Over the left base the percussion note was impaired; the breath sounds were harsh; expiration was prolonged and there were moist sounds. Nitrogen displacement was tried, but failed, owing to adhesions.

On September 16 the first stage of the operation was done, portions of the first nine ribs being removed through a posterior incision. Ten days later the second stage was done, the first to the seventh costal cartilages, including the costal margin, being cut away. There was slight shock after each operation.

The patient's general condition is now greatly improved. The cough and sputum are greatly diminished, and the latter is no longer offensive. The patient, who previously was often drowsy and apathetic, is now a bright girl and able to go out to work for the whole of each day.

The PRESIDENT contrasted the greater advantage of this method of reducing the size of the chest cavity over the ordinary method of Estlander. He mentioned having carried out this latter method on several occasions, and always found it necessary to remove the periosteum. He asked whether the periosteum was removed by Mr. Morrision Davies. (The answer was in the negative.)

Osteitis Fibrosa Cystica.

By H. MORRISTON DAVIES, M.C.

M. S., AGED 14, fell on her left hip eighteen months ago. Pain was slight and passed off in the course of the day. In March, 1914, she again fell on her hip, and since then she has had occasional slight pain and has limped continuously. She was seen in April, and a skiagram then taken showed a condition of affairs very similar to that which can be seen in the one taken this month.

There is at present very slight limitation of flexion, more of extension, some limitation of abduction and adduction, marked limitation of internal rotation, but none of external rotation. The range of movement in this direction is, however, not increased. There is shortening of the limb, and the great trochanter is raised above Nélaton's line to an extent practically corresponding with the shortening. The enlargement of the upper end of the shaft and of the neck of the femur can be felt. The skiagram shows curvature and enlargement of the upper end of the shaft and of the neck of the femur; the bone is expanded and the cystic condition and septa are easily seen. The epiphysis of the great trochanter is unaffected. The only alteration since April is a slight increase in expansion of the outer aspect of the bone.

A Case of "Fibrocystic Disease" of the Femur.

By STANLEY BOYD, F.R.C.S.

C. F., AGED 8, was admitted to Charing Cross Hospital in November, 1914, for pain in and swelling of the upper part of the right thigh. The mother stated that the child had been ailing and getting thin "for some time." For a fortnight she had been under treatment, and the doctor at first thought she was going to have a fever. After a week the child complained of pain in the left thigh, causing the mother to wrap it in flannel. About a week later, being better, the mother let her go out. She was knocked down by boys playing, and said she fell on her back, her legs going up. She cried so much that the mother took her to the doctor, who sent her to Charing Cross Hospital for an X-ray photograph. This was early in November. She was admitted sixteen days later, not having been kept in bed, but the mother thought her leg was getting "drawn up" (she probably walked on the toes), and tried to get the child's admission hastened.

The first skiagram showed swelling of the upper fourth of the shaft of the femur, thinning of the compact tissue in this region, especially on the outer side; a large central translucent area extending up to the base of the neck; a transverse fissure extending inwards half-way through the femur, starting $1\frac{3}{4}$ in. below the trochanteric epiphysis. There was no evidence of external callus about this fissure. Thickening of the bone could be felt, nothing else abnormal.

Dr. Ironside Bruce's X-ray diagnosis was "central growth or inflammation, (?) tubercular." Both are very rare. Temperature was normal.

Operation: Incision on the antero-external aspect of swelling revealed a low bony prominence; the only place where a definite edge had been previously felt. The bony cap was removed. A sharp spoon removed at first only very soft red marrow and soft bony lamellæ. But ultimately a small mass of purplish-grey tissue was brought up from below the opening in the bone, possibly from the neighbourhood of the fissure. It was well outlined, and looked to me like the edge of a sarcoma. No fluid escaped.

Microscopy: Dr. Topley had to decalcify before he could get a section. He reported that the tissue was not sarcomatous but ossifying connective tissue. Dr. Dudgeon was kind enough to confirm this.

After-course: The child was kept in bed. A monthly skiagram showed rapid thickening of compact tissue of shaft and diminution of translucency. The child has now been up for a week, running about naturally.

The patient was the tenth and last child of the family. She was "nursed," like all the others. Before the above-described illness she had suffered only from measles. A Wassermann reaction was negative. Six of the ten children are living and healthy. The second and fifth were born dead after instrumental confinements; the third died at the age of 14 months from "teething and convulsions"; the fourth died at the age of 19 of "pneumonia which turned to consumption." No child showed signs of congenital syphilis so far as could be gathered. The mother stated that she and her husband had had no illnesses of any severity.

Though no cysts were present this case is probably of the same kind as that which Mr. Morrision Davies is showing under the name

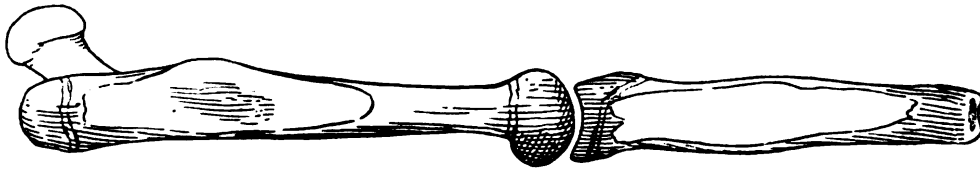


Diagram of section of femur and tibia, showing areas occupied by "fibrocystic disease" (?).
The shading in the femoral area represents deposit of lime salts.

"Osteitis fibrosa cystica." In their absence the diagnosis may be difficult, as the narration of my case shows, and I am much indebted to Dr. Topley and Dr. Dudgeon for their help in the matter. Many years ago I had a case in which I had no such help, and in which, as I now believe, I committed a grave error. A healthy-looking boy, aged 13, came to me in January, 1907, complaining of swelling of the right thigh which had begun (i.e., been noticed) on Christmas Eve, but he had had occasional pain in thigh previously. No cause was known. He had had "rheumatism" three and a half years previously, was in bed a week, and had walked peculiarly since. His parents, brothers, and sisters were all well. I went into the question of syphilis with the father, who denied the possibility of it. The boy showed no signs of congenital syphilis. The enlargement of the right thigh in its upper half was sufficient to show in a photograph. The soft parts were

normal; the femur was thickened and seemed bowed forwards and outwards, where a "boss" could be felt. Muscles somewhat wasted. The right tibia also was 1 in. longer than the left, wider, and somewhat irregular in outline. I cut down on the "boss" on the femur, removed a thin cap of bone and exposed rather firm pale pink tissue, which, to the naked eye and under the microscope, seemed to be a fibrosarcoma. I amputated through the hip-joint and the disease did not recur.

A longitudinal section of each bone showed an outlined patch of pale pinkish-white tissue, firm, calcified over a considerable area in the femur but not in the tibia, surrounded by thinned, compact tissue which had yielded on the front of the femur in the form of a "boss," but bone covered the new tissue everywhere. The periosteum stripped easily. The surface of the tibia where bulging was purplish. The tendency of the femur to bend was resisted by hypertrophy of the *linea aspera*.

I always had a suspicion that whatever the nature of this change may be, it was not sarcomatous. I now think that this case will find its place among those which we are discussing this evening. Curetting, where applicable, seems to lead to a cure, but it would be worth while trying the effect of radium or X-rays upon these young cells.

DISCUSSION.

Dr. HAMILL compared the skiagrams of the cases shown with those of a patient under his care (pp. 38-39). His patient, a boy, aged 15, had sustained fractures on nine occasions, the first in 1911 and the last in May, 1914. On the last occasion he fractured the humerus, radius, and ulna of both arms. Several of the fractures had been caused by very slight force, and one of the right humerus in December, 1913, was the result of a slight exertion. Skiagrams showed the existence of fibrocystic disease in all the long bones and in two metacarpals. The humeri were most extensively affected, but the right femur was as yet but little diseased. The fractures gave rise to relatively little pain and the bones united readily. Apart from the affection of the bones, the patient was otherwise normal and there did not appear to be any evidence of disordered internal secretions. In a patient in whom a bone was but little affected, he would advise opening the bone and curetting the cavity, so as to remove all the diseased portions, but in his case such a procedure could not well be carried out.

The PRESIDENT showed a skiagram of the upper end of the femur, exhibiting a spontaneous fracture of the great trochanter and shaft with the appearances presented by the ordinary extra-capsular impacted fracture; the bone showed a loss of compact tissue. It was thought at first to be a growth,

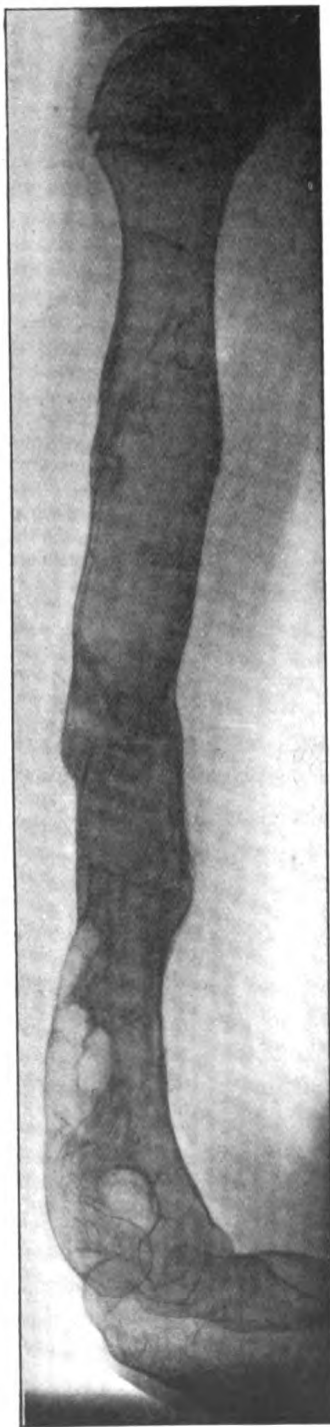


FIG. 1.

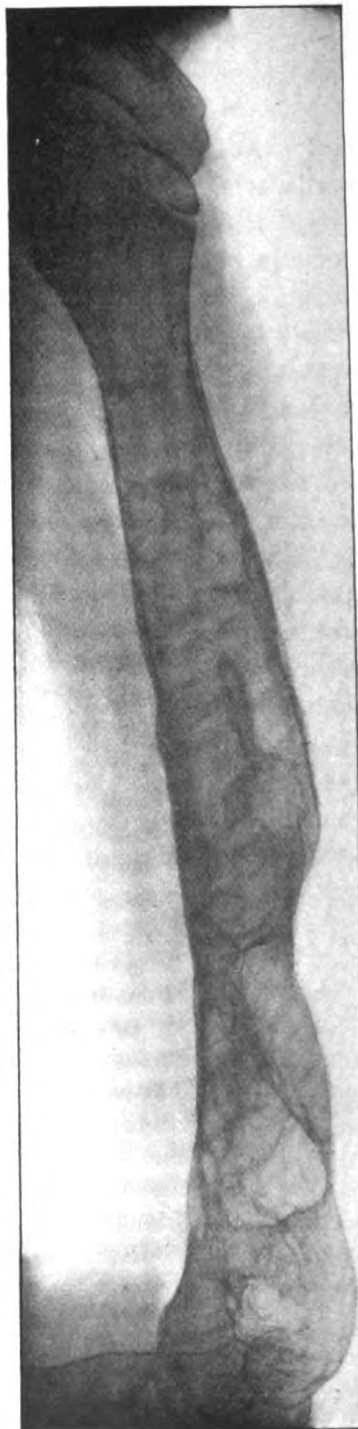


FIG. 2.

Hamill: Case of fibrocystic disease.

Fig. 1.—Right humerus, lateral view. (This skiagram, together with those illustrated in figs. 2, 3, and 4, was taken in July, 1914.) The bone was fractured in April, 1912, December, 1913, and May 27, 1914. The whole shaft, with the exception of the upper inch, is extensively affected by the disease. The sites of the fractures are readily recognisable.

Fig. 2.—Left humerus, lateral view. Fractures occurred in October, 1911, July, 1913, April 26 and May 27, 1914.

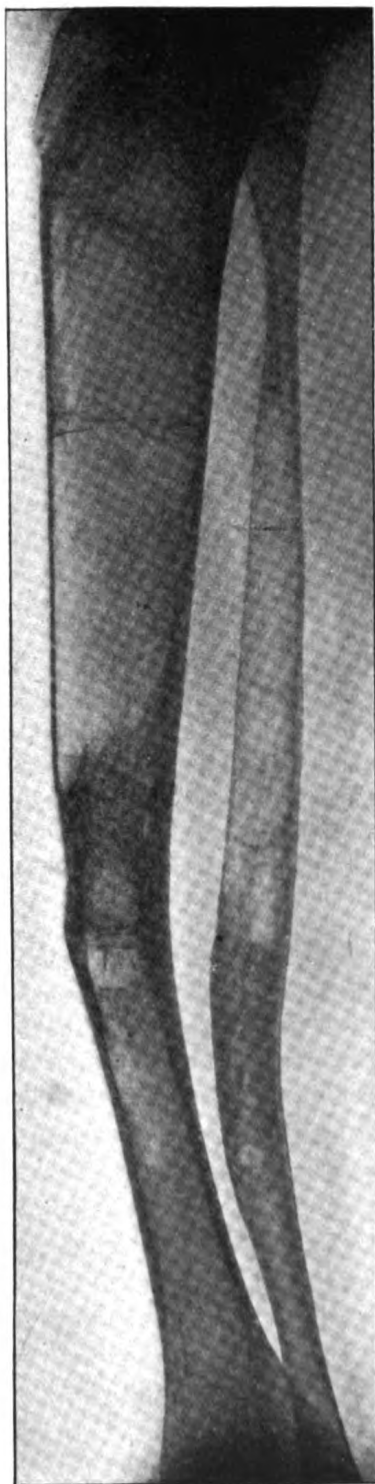


FIG. 3.

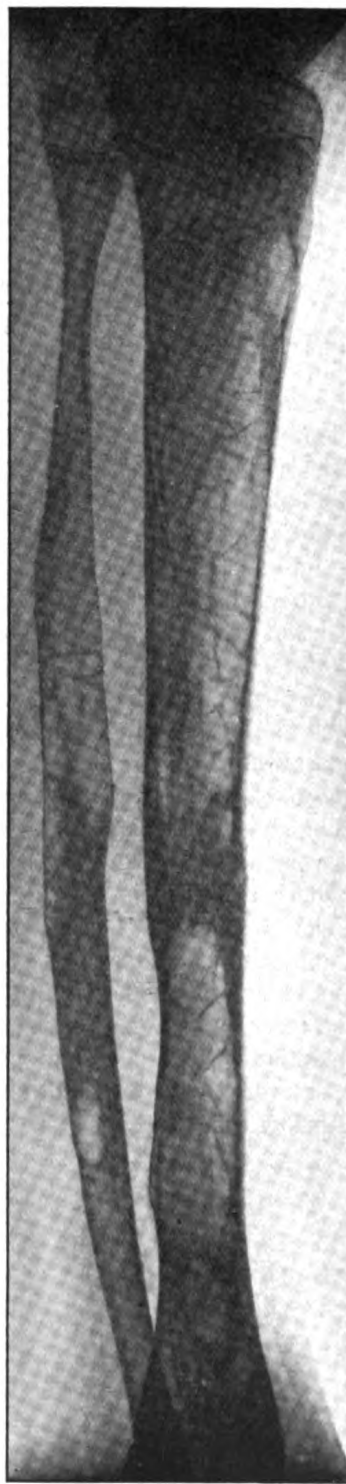


FIG. 4.

Hamill: Case of fibrocystic disease.

Fig. 3.—Right tibia and fibula, lateral view. The disease is not so extensive as in the case of the humerus; the callus at the site of the fracture, which occurred in July, 1913, is fairly dense.

Fig. 4.—Left tibia and fibula, fractured in July and November, 1913. The disease is more advanced than on the right side, but good union has taken place at the sites of injury.

but in the light of the cases shown by Mr. Morriston Davies and Mr. Stanley Boyd that evening, as well as from the preservation of the natural outline of the bone, he thought it was probably an example of the disease under discussion. The patient was a lady, aged 28. He hoped later to publish the case in detail.

Mr. ELMSLIE thought that no one who had had experience of such cases would doubt the correctness of diagnosis in these. They illustrated very well the usual modes in which fibrocystic disease of the long bones made itself evident—in Mr. Boyd's case by an incomplete fracture, in Mr. Morriston Davies's by enlargement of the bone with bending. The whole subject of these somewhat rare conditions badly needed ventilation, for mistakes in diagnosis were not infrequent, and had led to the unnecessary sacrifice of the limb. In a case of disease of the upper femur, for which the late Mr. Roughton performed amputation at the Royal Free Hospital some years ago, that surgeon himself expressed doubt after the operation as to the diagnosis. He (Mr. Elmslie) had been able to examine the specimen last year and had no doubt that it was a case of fibrocystic disease. The patient was traced and found to be well, without recurrence, five and a half years after the amputation. Similar cases were on record, including one in which a German surgeon claimed to have cured a sarcoma of the femur by curetting. The pathological picture in these conditions was so extraordinarily varied that it was very doubtful whether the conditions should be classed as inflammatory, or whether they were not rather a metaplasia of the bone and marrow tissues. In view of this doubt Mr. Elmslie suggested that for the present the name "fibrocystic disease of the bones" should be used, as this did not commit them to any theory of causation. He thought that there was evidence in Mr. Morriston Davies's case that the disease was progressing, and that the bone should be opened and curetted. It was important that curetting should be persevered with until normal marrow or cancellous bone was reached above and below the disease.

So-called "Frost-bite."

By R. H. JOCELYN SWAN, M.S.

DURING the last few months so large a number of soldiers have been incapacitated by a painful condition of the feet, which is described as "frost-bite," that the subject deserves the attention of the medical authorities, and I now bring the question before you in the hope that discussion may elucidate its pathology and provide some guidance for its treatment and prevention.

I have seen over a hundred of these cases, eighty of which have been admitted to the wards of the Royal Herbert Hospital. Almost without exception these men have been subjected to long standing in the trenches in mud and thawing snow, without any opportunity of active exercise or change of position other than that of sitting down with pendent feet. I have made careful inquiries in all cases as to the condition of their boots and clothing, and find that nearly all wear boots one or two sizes larger than in ordinary life—and in only two cases did I find that more than one pair of socks were worn. All declare that bootlaces and puttees have not been tied tightly. Hence the one condition which seems applicable to all cases is the continuous standing with wet feet. One patient was affected in both feet and in the fingers of the right hand; he had worn a wet woollen glove on the right hand, while the left, which was unaffected, was ungloved.

The patient states that the foot first feels cold and numbed, but that he is sometimes able to restore warmth to it by stamping the foot on the ground. On trying to walk, the front part of the foot is insensitive and he feels as if he is walking on his heel. Patients thus affected are often obliged to remain in the trenches until darkness comes on, before they can be moved to the field dressing station, during which time the causative factor continues and the condition is made worse by the swelling of the confined foot. When the boot is removed the swelling becomes more marked, and in a few cases the skin of the foot is blistered. In a few of the earlier cases the condition was perhaps made worse by the application of warmth, but this has been exceptional in my experience. It should be remembered, too, that any description of these cases is limited to one's personal experience in an English base hospital, and that patients are seen three or more days after the onset of the affection.

The cases present themselves in two distinct groups: one in which there is little gross change in the tissues of the feet, but marked subjective changes; the other in which tissue destruction has occurred, leading to gangrene varying from a superficial skin lesion to a massive gangrene affecting the toes or even the whole foot. In these cases of gangrene I was unable to obtain any evidence of the increased intensity of cold or any difference in the primary treatment applied to the feet.

The cases in which no gross lesion is present are by far the most numerous. The skin of the anterior part of the dorsum of the foot may be slightly oedematous, of slightly bluish colour, and often rather dry and scaly. The patients complain of pain of an aching, swollen, or bursting character, which is most severe at night and keeps them awake. Most of these cases show a marked area of cutaneous anæsthesia and analgesia extending in "stocking form" from the points of the toes to the heads or even to the bases of the metatarsal bones, whilst the joint sense and vibration sense may be lost. In some cases the cutaneous change is a marked hyperæsthesia, the slightest touch, even of a piece of cotton-wool, causing pain. I am satisfied that the hyperæsthetic condition does not precede or follow the anæsthetic, as I was inclined to think at first, and I can give no reason for the different condition when the local appearance is the same. Whichever condition is present, however, there is often marked pain on passive movement of the toes or upon applying any pressure upon the metatarsal portion of the foot.

I am not inclined to look upon this condition in any way as a "neurosis," as has been suggested, but rather as a tissue change due to vasomotor constriction maintained for some time.

The cases which present more interest from the surgical point of view are those in which some actual gross lesion of the tissues has occurred. In the simplest form this is seen as a small area into which hæmorrhage has occurred, the skin over it being discoloured, dry, and wrinkled. This area may slowly slough, leaving an ulcerated surface which is slow to heal. In one case under my care the under surface of each great toe was affected, the one as a slight cutaneous discoloration, the other as a distinct ulcer covered by dull granulations.

In a more advanced condition one or more toes are gangrenous, presenting a dark, dry, wrinkled appearance with rapid formation of a pronounced line of demarcation—the typical appearance of dry gangrene. In several cases under my care it has been noticed that the great toe has been more seriously affected than the others, and

when all the toes are affected the line of demarcation has become progressively near the periphery towards the outer side of the foot. These cases of dry gangrene are best let alone, as the gangrenous part slowly separates, leaving a healing granulating area, from which it may be necessary later to remove any prominent piece of bone. In one case under the care of my colleague, Mr. Rowntree, separation took place behind the heads of the metatarsal bones and no operative interference was necessary. In cases in which actual gangrene has taken place it is more usual for only one foot to be thus affected, and I have been unable to discover any physical reason for this, although apparently the same factors were present on both sides. The gangrenous areas do not present any relation to any particular points of pressure that would occur on standing, but rather affect the peripheral parts of the extremity.

In three cases under my care, a further extension of the tissue destruction has occurred, accompanied by rapid sloughing and a condition of moist gangrene, the terminal part of the foot being blackened, whilst the dorsum and lateral aspects were occupied by areas of superficial gangrene. There was much exudation of foul pus, the skin quickly separating, with rapid infection of the tarsal and metatarsal joints. In two of these cases the condition was unilateral, and one of them developed tetanus on the fourteenth day, the spasms being particularly severe, and death occurred after four days. The third case is the most severe which I have yet seen. Both feet were involved, the right more than the left. The patient was extremely ill, having frequent rigors, with temperature reaching 106° F., the tarsal and ankle joints of the right foot were involved, and I amputated through the lower third of the leg. He improved for a few days, when a septic temperature recurred, and as he was obviously going downhill rapidly I amputated the left foot through the ankle-joint, cutting through purulent tissues in fashioning the flaps. From that time he commenced to improve and is now doing very well.

I have at present under my care a patient who has in one foot exactly the same symptoms as I have described, with discoloration and ulceration in two toes. He has not been out of England, but has lived in barracks, and has not been subjected to any long exposure with wet feet.

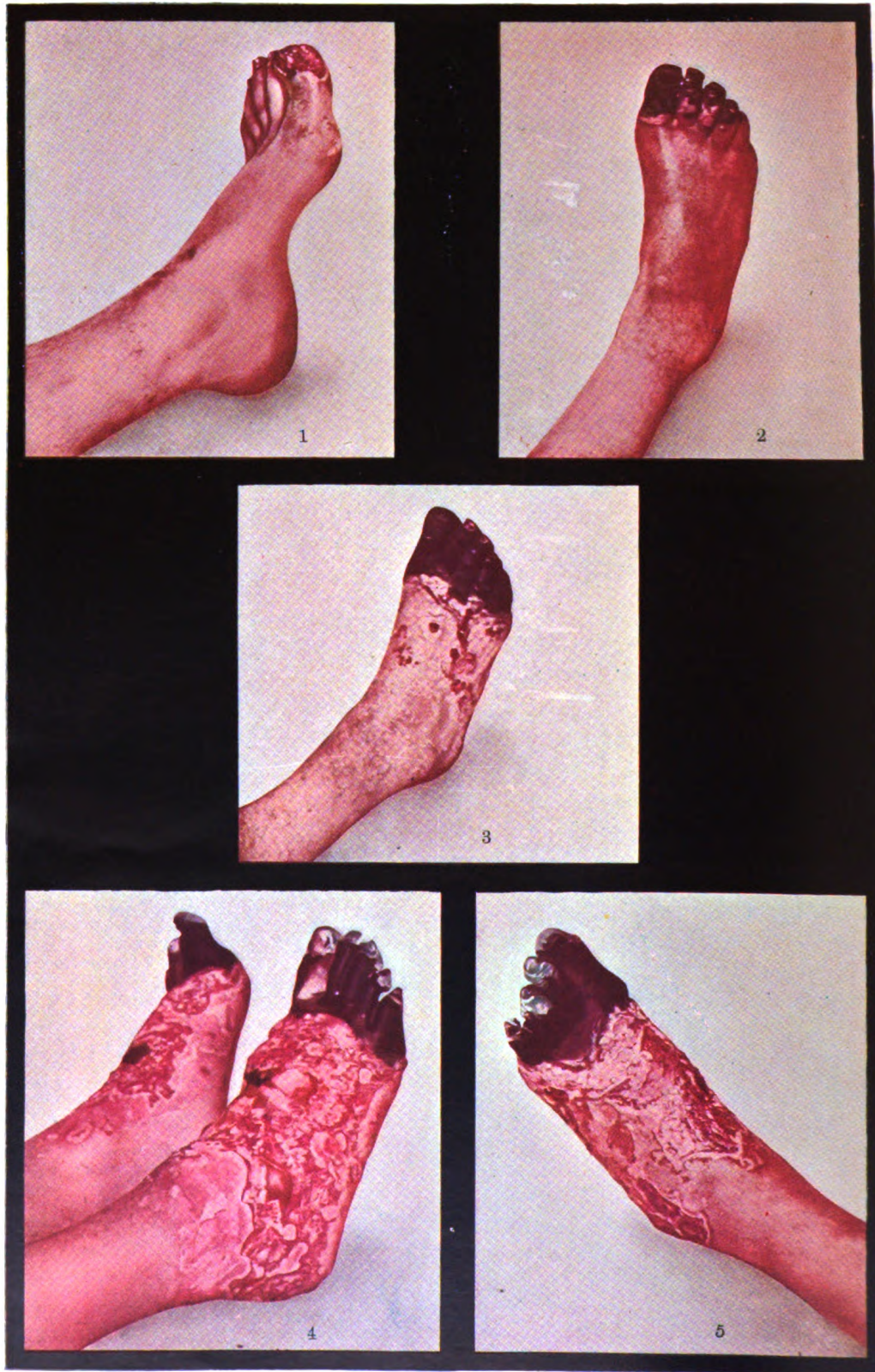
TREATMENT.

Of the treatment of these cases there is not much to be said. In the majority of the cases presenting subjective symptoms of aching and anæsthesia I find it best to keep the patient in bed with the limb raised, to dry the foot with spirit, and cover it with wool after dusting with boracic acid powder. Twice a day they are gently massaged, and in some cases weak faradism applied, but I have found no advantage from electric baths. The aching pain is usually relieved by aspirin. Where the skin is very discoloured from underlying hæmorrhage I treat them in the same way, but where actual tissue destruction has occurred, the foot is well cleaned and painted with 2 per cent. solution of iodine in spirit; when a line of demarcation appears the surface is wrapped in cyanide gauze, which is changed daily until the part is easily removed; and I would much rather await a natural separation than perform an amputation which must necessarily sacrifice a greater amount of the foot for the formation of the necessary flaps.

Where moist gangrene is met with, and especially where toxic absorption has taken place, amputation just above the gangrenous area is required, but it is not necessary to sacrifice a lot of tissue by dividing the limb some distance above the highest point of gangrene. In one case I did a Symes's amputation and found pus in the tendon sheaths in front of the ankle, whilst there was a sloughing ulcer behind the heel. Very few sutures were put in and the stump drained with a good result.

PROPHYLAXIS.

It is probably to the prevention of this condition that attention should be chiefly directed. To my mind the condition, whatever its true pathology, is more likely to be due to the prolonged maintenance of a pendent position of the feet, wet from soakage in the slushy mud of the trenches, without any opportunity of exercise or of drying the feet, rather than to the severity of frost. It is perhaps noteworthy that the frost-bite known to Alpine climbers is more likely to occur when a thaw sets in than when there is severe frost. Perhaps with the approach of spring and better weather these cases may not occur, but there is no certainty that the present campaign will not go through another winter, when our soldiers may be fighting in even more severe climatic conditions than have already been experienced. Cannot we therefore arrange that their feet should be better protected from wet



SWAN: So-called "Frost-bite."

DESCRIPTION OF PLATE.

FIG. 1.—Ulceration of the inner side of distal part of great toe by superficial gangrene of skin.

FIG. 2.—Dry gangrene of four inner toes, the great toe being most affected. Rest of foot is normal.

FIG. 3.—Dry gangrene of anterior portion of foot with subcutaneous hæmorrhages under skin of dorsum of foot. (Mr. Rowntree's case.)

FIG. 4.—Massive moist gangrene of both feet: the tendon sheaths and tarsal joints were rapidly opened up in the process. Severe toxic symptoms requiring amputation through the lower third of leg on right side and through the ankle-joint on the left.

FIG. 5.—Moist gangrene of foot. Rapid disorganisation of tarsal joints. Developed tetanus on fourteenth day.

These figures are reproduced from some of the series exhibited by Mr. Swan, taken by the Paget process of colour photography.

when fighting in conditions which make active movement impossible? The regulation military boot cannot be improved upon as far as quality goes, but no ordinary boot will prevent water getting in over the top. A gum boot might serve, but it would necessarily impede movements in attack or defence. Waders, as used by ardent fishermen, are too expensive for general supply, but have been a boon to those fortunate enough to possess them; and I think some good might be found from the use of thin mackintosh in the form of a stocking outside the sock but inside the puttee. This might retain any body moisture, it is true, but already the Canadian forces at the front have improvised mackintosh in this way, with good results. I have heard that a condition similar to that which I have described occurred in the recent Balkan War owing to the long-continued damp to which the soldiers' feet were subjected. Another means of prevention, to which attention might be directed, is that of thoroughly smearing the feet with an abundance of vaseline, and I understand that the free use of whale oil on the feet has been very effectual in preventing the trouble. It might also be of use if the boots were large enough to allow some play of the toes, and the men instructed to practise this. The circulation in the extremities would be improved; but I feel sure that if the continuous effect of wet could be avoided, we should hear less of these cases of so-called "frost-bite."

DISCUSSION.

Dr. GALLOWAY said that after seeing Mr. Jocelyn Swan's demonstration and listening to his remarks, it must be clear to all that the name "frost-bite," as applied to these cases of injury occurring in our troops abroad during the winter campaign, was both erroneous and misleading. He had seen a considerable number of these cases at No. 4 General Hospital, some of them being under his own care, and had early come to the conclusion that the condition, even when it involved necrosis, was not due to freezing of the extremities. The injury, of which so many cases have occurred, was clearly due to prolonged partial arrest of the circulation, and cold was only one of the factors in its causation. More important were the swelling of the feet, the comparatively tight footgear, the want of movement for considerable periods, added to the constant wet and cold. It was of interest to recollect the close resemblance between the appearances in these cases and the very similar state of affairs occurring as the result of what Dr. L. Buerger, of New York, has named "thrombo-angitis obliterans." Numerous cases of this condition had been described by Dr. Parkes Weber and Dr. L. Buerger, occurring nearly always among Jews in London and New York. These patients often gave

evidence of feeble nutrition, and it had been suggested that the influence of tobacco was considerable in their causation. Many of the sufferers had been employed as cigarette makers and in other ways in the tobacco industry. This explanation, which appeared to have some foundation, suggested that the excessive smoking of cigarettes, encouraged by the enormous quantities sent to our troops, might be another factor in causing this serious disease among our soldiers. He hoped that a report might be forthcoming on the pathological changes observed in the arteries and veins of the affected parts in those cases in which amputation of parts of the limbs had been performed. These results would be of interest to compare with those already recorded by Dr. Buerger. Dr. Galloway thought that prevention could be brought about to a large extent by securing not only dryness and warmth, but by keeping the lower extremities in movement. He had recently seen a picture of a Belgian soldier in the trenches wearing large sabots on his feet packed with plenty of straw, and with his legs loosely covered. He thought that this was probably a better type of foot covering under the conditions than the comparatively tight boots and puttees worn by our men. There seemed to be no doubt that the use of vaseline or some other oily material, with plenty of rubbing of the extremities, was a most useful precaution in the prevention of this injury.

Dr. E. G. FEARNSIDES said that the cases¹ which he had seen could be classified in three groups: (1) Those with gross objective signs with perhaps some sensory loss of the type seen in cases of peripheral neuritis, but no subjective symptoms. (2) An intermediate group with less gross objective manifestations and slight blunting of sensation over the distal parts of the feet, but no absolute anæsthesia; in a few cases in this group he had found a band of hyperæsthesia at the upper border of the affected area. (3) Those in which, on arrival in this country, few or no objective signs were present, but sensation was lost over an area of the stocking type and subjective complaints and general apprehensiveness were extremely prominent; in civil practice such manifestations would be ascribed to a neurosis. He had not seen any cases of classical frost-bite due to the actual freezing of the soft tissues. Three of his patients, however, had suffered when in other parts of the world from this classical type of frost-bite; these men were agreed that their symptoms in the past when suffering from frost-bite, and now when suffering from "trench-foot," were entirely different. In the Balkan War it had been agreed that the objective changes were vascular in origin.

¹ Cf. Fearnsides and Culpin, *Brit. Med. Journ.*, 1915, i, p. 84; Fearnsides, *Brit. Journ. Derm.*, February, 1915, pp. 33-51.

Clinical Section.

March 12, 1915.

Mr. CHARTERS J. SYMONDS, M.S., President of the Section, in the Chair.

Tumour of Neck ; Obstruction of Superior Vena Cava.

By J. PORTER PARKINSON, M.D.

E. J. L., FEMALE, aged 50, had lumps in the neck since the age of 10; these increased at about the age of 20, but diminished under application of iodine. She married when aged 30, and has had three children and no miscarriages. At the age of 34 the neck suddenly became stiff and she had severe pains; there is no pain now, but the stiffness has increased. Four or five years ago she noticed enlarged veins on the chest, and these have steadily increased in size. She has been getting somewhat thinner for the last eight years. Menopause six months ago.

On admission to hospital under the care of my colleague, Dr. Byrne (who has kindly permitted me to show the case), she appeared a somewhat thin woman, weighing 7 st. 6 lb. The head was held rigidly, somewhat bent forward, and not the slightest rotation could be produced. The muscles of the back of the neck were large and exceedingly hard, almost as if converted into bone. On each side of the neck, under the sternomastoids, was a somewhat irregular mass which moved on palpation; in the act of swallowing, its consistence varied from an indefinite fluctuation in some parts to a cartilaginous hardness in others. It was not adherent to the skin or surrounding parts. The isthmus of the thyroid could be felt, but was not enlarged to any extent. The right carotid artery was displaced backwards. There was enormous dilatation of the veins of the chest and abdomen, the direction of the blood-flow being downwards. Nothing abnormal could be made out in the chest

or abdomen. The urine was normal. The temperature varied between 98° F. and 99·4° F.

Skiagrams show no change in the vertebral column, no ossification of the muscles of the neck, and nothing abnormal in the chest.

After a month's treatment of the muscles of the neck by potassium iodide ionisation some slight movements of the neck are possible, but, on the whole, the condition is unchanged. The Wassermann reaction is negative. Blood examination shows: Hæmoglobin, 90 per cent.; red blood corpuscles, 5,170,000; leucocytes, 3,200; polymorphonuclears, 64 per cent.; large lymphocytes, 8 per cent.; small lymphocytes, 20 per cent.; transitionals, 4 per cent.; eosinophiles, 4 per cent.

I have brought the case for suggestions as to diagnosis: first, as to the nature of the tumours of the neck and the condition of the muscles, and secondly the cause of the interference with the superior vena cava. The neck tumours are, I suggest, enlargements of the lateral lobes of the thyroid, of the nature of a cystic adenoma partially calcified. Had it not been for a negative Wassermann reaction, tertiary syphilis might have accounted for the condition of the muscles of the neck and for the interference with the veins of the chest, and even now this seems to me a possible explanation.

DISCUSSION.

Mr. KELLOCK thought the most likely explanation was that the curvature in the spine and the tumour of the thyroid were not directly connected. He thought the former was due to spondylitis deformans, and that the cervical curvature in a forward direction was pressing on the enlarged and, in parts, calcified thyroid gland, and so causing an obstruction in the superior vena cava.

Dr. ADOLPHE ABRAHAMS said he had been in the position of observing the patient during the whole period that she had been under treatment. He had never felt satisfied that a mediastinal tumour was present; he had never been able to detect any area of impaired resonance, the skiagram showed no shadow, and it was a striking feature that there never had been any dyspnoea. He had, therefore, been much interested in hearing Mr. Kellock's opinion as to the causation of the venous obstruction. He would also like to add his opinion that the swelling and the rigidity of the spine were in no way connected.

Non-syphilitic Arteritis Obliterans ("Thrombo-angiitis" of Leo Buerger), with Gangrene of Toes. Remarks on the Occasional Connexion with Traumata.

By F. PARKES WEBER, M.D.

THE patient, A. S., aged 25, is a tailor, of Jewish race, who came from Russia to London nine years ago. He is delicate-looking and thin, having, as he says, lost about 28 lb. in weight during the last two years. He denies having had any venereal disease, and has two children, both living and healthy. His wife has had no miscarriages. There is no family history of nervous diseases. Seven years ago he first had trouble in his left foot and a doctor removed the nail of the big toe, which he thought was "ingrowing." Gangrene of the big toe followed, and ultimately, about twelve weeks later, the whole of his big toe had to be removed. The wound healed up and for a long time the patient had no further symptoms in his feet. In March, 1913, however, he got his feet thoroughly chilled (they were not wet) and then warmed them in front of a fire. Thereupon, though the left foot did not suffer, the distal portion of the right foot became painful, red and afterwards purple. The pain was so severe that he could not sleep. The nail and tip of the right great toe, which looked quite black, had to be removed, and the toe itself became permanently contracted. After the patient had been laid up for several weeks, the pain gradually diminished and then disappeared, but the cyanotic colouring of the foot persisted, though varying in degree from time to time. About five weeks ago the left foot assumed the same cyanotic appearance as the right foot, but he suffers no pain in either foot, though sometimes there is a sensation of "pins and needles." For the last two years there has been a condition of "intermittent claudication" in both legs, that is to say, when walking he has had to rest every few minutes on account of pain in the calves of the legs.

There seems to have been nothing peculiar in the patient's past dietetic habits, and there is no history of lead or other poisoning. He says he has been very moderate with alcohol, but that he used to smoke about twenty cigarettes daily. There is no special constipation and there is no history of colitis, nor has he suffered from pyorrhœa alveolaris. He has a small depressed scar on the back of the left hand and another

one over the lumbar spinal column, both apparently attached to bone and dating from the first weeks of life. He says that he has never been subject to chilblains.

Present condition: The distal portions of both feet are cyanotic, the right more so than the left; the colour varies from time to time, especially according to position. Thus, when the feet are raised up they become paler, and when they are allowed to hang down they become more cyanosed. Both feet are of a somewhat flat-foot shape



Skiagram of the feet of Dr. Weber's patient A. S., taken in March, 1915.

and feel cold. I cannot detect any pulsation in either the right or left dorsalis pedis artery, nor in any of the arteries of the feet. There is fair pulsation in both femoral arteries at the groin. The great toe of the right foot is, as already stated, permanently contracted in a flexed position. There is a certain amount of "glossy" trophic disturbance in the skin of the toes of both feet and there is the scabby scar of a recently healed ulcer on the right heel, where intermittent pressure occurs in walking. The patient thinks that his legs have wasted during the last two years, but only in proportion to the general wasting of his

whole body. Röntgen-ray examination of the feet (Dr. J. Metcalfe) shows some decalcification and bone absorption of the metatarsal and phalangeal bones, especially of the fifth toe of the right foot (*see illustration*).

The patient has well-marked signs of valvular disease of the heart with hypertrophy of the left ventricle, probably of rheumatic origin, though there is no history of rheumatic fever. The physical signs are those of aortic reflux, but there is likewise a musical systolic murmur, best heard at the apex. There is no evidence of any other disease of the thoracic and abdominal and genito-urinary organs. Nothing abnormal in the upper extremities. The brachial systolic blood-pressure is 145 mm. Hg.¹ There is no enlargement of the superficial lymphatic glands. The urine is free from albumin and sugar. Ophthalmoscopic examination of the patient's eyes shows nothing abnormal; the pupils react well. The knee-jerks are much exaggerated, and are of the "neurotic type," which is accompanied by "trepidation" of the whole limb. Plantar reflexes have not been obtained in either foot. The superficial abdominal and cremasteric reflexes are present. The blood serum gives a negative Wassermann reaction for syphilis. Blood-count (March 8, 1915): Red cells 5,760,000, and white cells 16,900 to the cubic millimetre of blood; hæmoglobin 85 per cent.; of the white cells 76 per cent. are polymorphonuclear leucocytes.

REMARKS.

I regard the case as one of non-syphilitic arteritis obliterans (the "thrombo-angiitis obliterans" of Leo Buerger), occurring, as it most frequently does, in a young adult male of Jewish stock from Eastern Europe. The exciting cause of the onset of the symptoms in the present patient's right foot was a kind of "frost-bite," but the patient had already previously had disease in the other foot without "frost-bite" of any kind connected with it. In this association it is interesting to note that the condition of the foot after some cases of so-called "trench frost-bite" (French, *mal des tranchées*) observed amongst the soldiers in the present war, resembles that in cases like the present one.

The connexion of other kinds of trauma with cases like the present one may also sometimes be confusing. Thus, in a patient recently in the hospital, there was a history that a cab went over his foot. The patient was a Jew, aged 37, with a very painful condition of the left

¹ But it is very variable. It doubtless varies considerably with sudden muscular movements of the body, mental excitement, &c.

foot, which kept him awake at night. The distal portion of the foot was red or purple, and there were black patches of superficial dry gangrene over the great toe and the heel. Pulsation was absent in the dorsal artery of the left foot, but was present in the dorsal artery of right (sound) foot. The left foot had certainly been run over, but the patient had complained of pains long previously, and slight atrophy of the calf-muscles of the left leg had been recorded three months before the accident, when the patient was at a health resort for treatment.

DISCUSSION.

Dr. ADOLPHE ABRAHAMS asked if this condition was restricted to Jews, and, if so, if Russian Jews alone were sufferers. It had always struck him as singular that certain diseases should be restricted to a race; and the Jewish race in particular appeared to have been particularly unfortunate in being afflicted with rare and exclusive conditions. This was markedly so in the case of amaurotic family idiocy, although in the only patient he had ever seen with that disease it had not been possible to trace any Jewish ancestry.

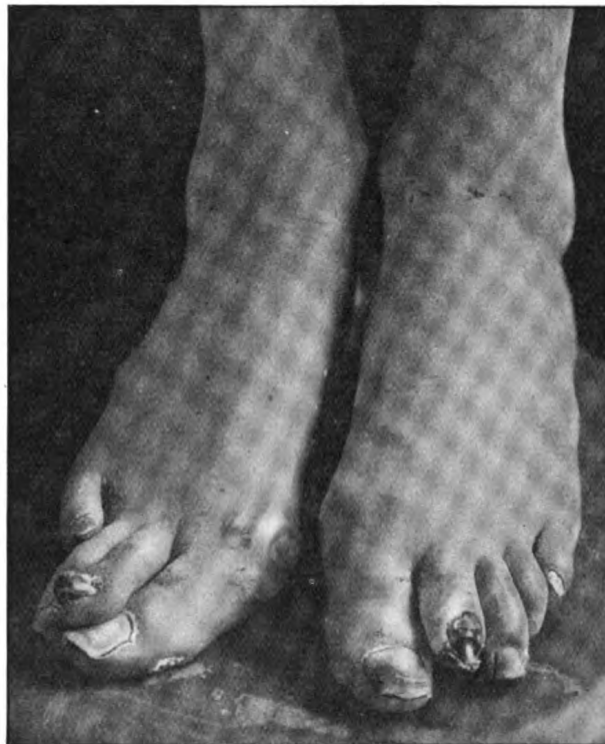
Dr. WEBER answered that the typical affection seemed to occur almost exclusively amongst Jews belonging to Jewish families from Central Europe, but not necessarily Russian Jews. Similar symptoms might, however, be caused by other kinds of arterial obstruction, especially those resulting from syphilis.

Sclerodactylia of Feet, associated with Arteritis Obliterans and Gangrene of Toes.

By F. PARKES WEBER, M.D.

THE patient, S. P., aged 48, a Russian Jew, was an in-patient under my care in July, 1914. He was a tailor by trade, of poor general nutrition. The skin over the toes of both feet was atrophic, shiny, and looking as if it were tightly stretched out; it was discoloured by purple mottling. Both feet tended to be cold. There was no anæsthesia. I did not feel any pulsation in either dorsalis pedis artery, nor did I feel any arterial pulsation anywhere in the feet. Pulsation in the femoral arteries at the groin, normal. The calf-muscles were somewhat atrophic, but he said that his legs had always been thin. The tip of the fourth toe of the left foot had been cast off about seven years ago, he said, and the fourth toe of the right foot had been amputated two years later. The second toe of the left foot was partially

necrosed (dry gangrene), and some bare bone was projecting at the end, where the soft part of the tip had fallen off. There was an ulcer in the atrophic skin over the outer part of the right heel, and over the corresponding part of the left heel there was the scar from a similar previous ulcer. Both feet were stiff and of somewhat flat-foot shape. Dr. James Metcalfe, as a result of examination by Röntgen-ray skiagrams, reported (July, 1914) that there seemed to be some decalcifica-



Feet of the patient S. P. (From a photograph taken on July 20, 1914.)

tion of the bones in the feet and partial ankylosis of the joints. The knee-jerks on both sides were rather exaggerated; no plantar reflexes could be obtained. The blood serum gave a negative Wassermann reaction for syphilis, and there was no history of previous syphilis or of alcoholism. The patient had been accustomed to smoke about twenty-five cigarettes a day. He had enjoyed good health until about 1907, when superficial gangrene commenced on the fourth toe of the left foot and the tip of the toe was thrown off. Half a year later the left great

toe gave him trouble and an ingrowing (?) toe-nail had to be removed. In 1909 the fourth toe of the right foot became diseased and was amputated with good result. Then, for a long time, he had no fresh trouble with his feet, but about six months before admission an ulcer appeared on the outer side of the left heel. This healed up after about three months, but then a similar ulcer developed on the right heel, which was still present on admission. The gangrene in the second toe of the left foot had commenced about two months before admission, and had been treated with hot fomentations. The patient had never observed any definite "intermittent claudication" in the lower extremities. The arteries of the upper extremities and his brachial blood-pressure appeared normal.¹ Apart from the condition of the feet there was nothing special (including ophthalmoscopic examination) to be noted, excepting that the patient suffered from pyorrhœa alveolaris.

In the hospital my surgical colleague, Mr. A. Compton, kindly amputated the second toe of the left foot at the metatarso-phalangeal joint, and, owing to the defective blood supply to the part, there was hardly any bleeding at the operation. The wound healed up slowly and he was able to get about again. His teeth were extracted on account of the pyorrhœa alveolaris. As a medicine he was given syrup of iodide of iron.

The accompanying illustration is from a photograph of the feet taken on July 20, 1914. Since leaving the hospital (in December, 1914) the patient has suffered from great pain about the right great toe, where recently there has also been slight superficial ulceration. He is now markedly anæmic and shows a polymorphonuclear leucocytosis. A blood-count (March 8, 1915) gives: Red cells 2,600,000, and white cells 35,600 to the cubic millimetre of blood; hæmoglobin 60 per cent. Of the white cells 74 per cent. are polymorphonuclear leucocytes.

The case seems to me to be one of an atrophic type of scleroderma, limited to the feet ("sclerodactylia" of the feet), associated with a definite ischæmic condition (due to local arterial disease). In many respects the case resembles the one which I described in the *British Journal of Dermatology* for 1901 (vol. xiii, p. 41) under the heading, "Trophic Disorder of the Feet—an Anomalous and Asymmetrical Case of Sclerodactylia with Raynaud's Phenomena." Such cases differ considerably from those cases of symmetrical sclerodactylia in which the sclerodactylia is associated with atrophic scleroderma of the face and

¹ The brachial systolic blood-pressure is about 145 mm. Hg.; but it is very unstable varying considerably even within a few hours.

other parts. A typical example of the generalised atrophic scleroderma cases is that of a Jewish woman, who has been several times in the German Hospital during the past ten years, and whose case strikingly resembles that of the young woman shown by H. D. Rolleston and S. Vere Pearson at the Clinical Society of London in 1901 as an example of "Generalised Scleroderma with Raynaud's Disease."¹

It must be admitted that in the present case, could one examine the dorsal artery of either foot, it would perhaps not be found actually occluded by arteritis obliterans or thrombosis. Possibly one would find only contraction and thickening (not merely apparent thickening) of the middle coat. That is what I found in the examination of the amputated foot of a young man whose case I had described in 1901 (in the above-mentioned paper) as an anomalous example of sclerodactylia.

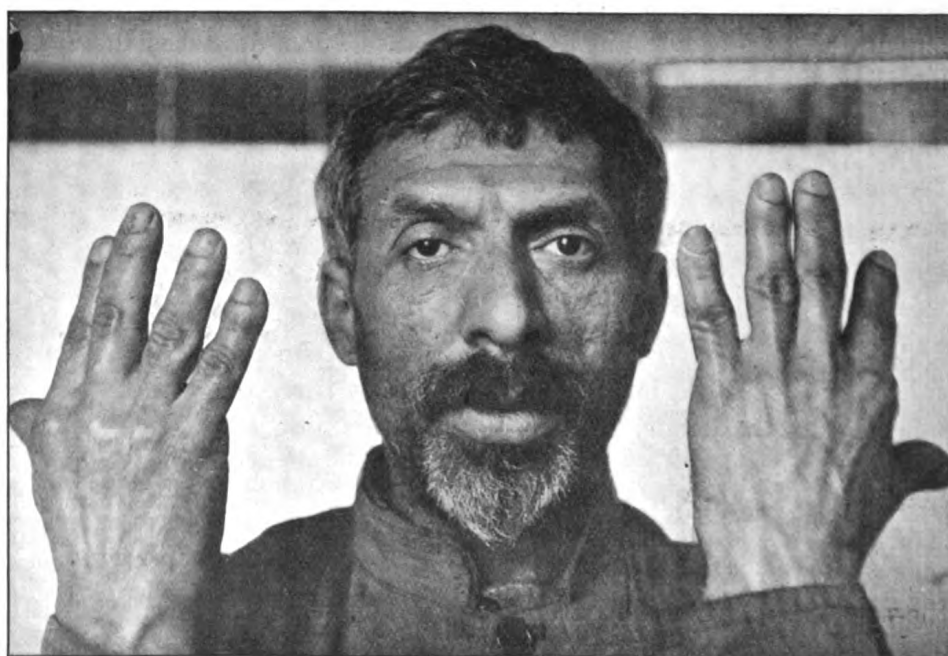
A Case of Acromegaly.

By F. PARKES WEBER, M.D.

THE patient, I. L., aged 48, a Russian Jew, shoemaker by trade. first came under my care in February, 1914. He said that he formerly enjoyed good health, but that during the last three years he had noticed weakness in the hands, and thought that his nose, lower lip, hands and feet had increased in size. He had chronic glaucomatous changes in both eyes, and an iridectomy had been performed at the Middlesex Hospital three years ago for glaucoma in the right eye. The accompanying illustration from a photograph, taken in the German Hospital, shows the appearance of the patient's face and hands on February 23, 1914. The large nose and thick fingers and the feet are fairly characteristic of acromegaly. Vision, owing to the chronic glaucomatous condition of his eyes, was defective, but there was no evidence of hemianopia; and Röntgen-ray skiagrams (Dr. James Metcalfe) of the base of the skull showed nothing special, excepting that the pituitary fossa appeared a little deeper than normal. By Röntgen-ray examination the bones of the hands were seen to be very thick, but their thickness only corresponded to the great breadth and fleshiness of the whole hands. In regard to the skiagrams of the hands and feet, Dr. Metcalfe reported that the terminal phalangeal bones of the hands showed irregularities and some

¹ *Trans. Clin. Soc. Lond.*, 1901, xxxiv, p. 215. The same case was re-described by H. D. Rolleston and G. D. H. Carpenter in *Proc. Roy. Soc. Med.*, 1910, iii (Clin. Sect.), p. 32, under the heading, "Scleroderma with Sclerodactyly."

"tufts," the great toes showed exostoses, and the other toes were very "bushy" at the ends. The patient's blood serum gave a negative Wassermann reaction for syphilis. Pituitary treatment was tried for two months, and in April, 1914, the patient himself thought that "on the whole he felt a little stronger." The result, however, was not very encouraging, and each hypodermic injection of 2 c.c. of pituitrin was followed in about ten minutes by pallor of the face, sweating, and feeling of faintness (cerebral anæmia?). The treatment was discontinued at the end of April, 1914. The patient now complains chiefly of



Dr. Weber's case of acromegaly. (From a photograph taken on February 23, 1914.)

general debility and the progressive loss of vision connected with the chronic glaucoma.

The association of acromegaly with glaucoma in the present case is, I suppose, a chance one. I have not heard of the same association having been observed in any other cases. The acromegalic patient in the present instance happens to be a Jew, and Jews (perhaps especially Jews from Poland and Eastern Europe) are rather more subject to glaucoma than the ordinary Latin, Celtic, Teutonic, Scandinavian, or Anglo-Saxon stocks of Western and Central Europe.

The Morvan Type of Syringomyelia (?).

By F. PARKES WEBER, M.D.

IN 1883, Morvan, a French doctor, working in Brittany, described cases of a trophic disorder of the extremities associated with the formation of painless whitlows and areas of analgesia. Though Zambaco Pasha (Constantinople) tried to prove that Morvan's cases were sporadic examples of attenuated leprosy (occurring in Europe), Charcot, Marinesco, Jeanselme, and others succeeded in proving that most of them were due to syringomyelia, and Charcot termed the so-called "Morvan's" disease (or rather syndrome or symptom-complex) the "Morvan type of syringomyelia."

The present case is that of a man, aged 45, who for the last fifteen months has suffered from trophic disturbances in the hands characterised by the occasional formation of scabs, which gradually peel off. In the present case there is as yet no condition of actual "cheiromegalia," as there is in some cases of syringomyelia, which can in any way be confused with acromegaly. Nor is the process of scab formation on the fingers associated with actual suppuration, as it is in some of the "painless whitlows" of the Morvan type of syringomyelia. The patient's toes are somewhat "clubbed," and the local thickenings of the skin over the toe-tips apparently correspond to the scabs on the finger-tips. There is a little superficial hypalgesia at the extremities. The ulnar nerves at the elbows feel perhaps somewhat thicker than in most persons, but there is no real evidence of anæsthetic leprosy, and the patient says he has not been out of Europe during the last sixteen years. The Röntgen-ray skiagrams (Dr. J. Metcalfe) of the hands and feet conform to the rule that trophic changes in these parts in cases of syringomyelia are practically confined to the soft parts, leaving the bones unaffected. There is no kyphosis or deformity of the back. There is no acromegaly-like change in the patient's face, such as has been rarely met with in cases of syringomyelia. Though the scab formation in the fingers is painless, the patient does suffer from subjective pains (some of Morvan's patients complained of "neuralgic pains"), notably what he calls "sticking pains" in the fingers in cold weather. The pupils react to light and accommodation. The knee-jerks are somewhat exaggerated. The plantar reflexes are active and of the normal (flexor) type. The blood serum gives a negative Wassermann reaction for syphilis. There is no muscular wasting.

Case of Splenomegaly, with the Clinical Picture of Banti's Disease.

By F. PARKES WEBER, M.D.

THE patient, Mrs. S. S., aged 55, a Russian Jewess, was admitted under my care on November 6, 1913, with great enlargement of the spleen and moderate pyrexia. She said that she had not been feeling well for the last year, but for the last three weeks she had been worse and had been confined to her bed with general weakness. She had suffered from headaches, &c. For the last twenty years she had almost constantly had chronic ulcers on her legs. Otherwise she had enjoyed good health. She had had two miscarriages and two children; both children died at about 1 year of age, of bronchitis.

In the hospital: The spleen was hard and enormously enlarged, bulging forward and extending downwards to the pelvis (*see diagram*). The patient's temperature at first varied between 99·4° F. and 101·3° F. The pulse-rate averaged about 120, and the respiration about 32 to the minute. Examination of the thoracic and abdominal viscera showed nothing of importance beyond the splenic condition already mentioned. There was a certain amount of expectoration, and the sputum was examined for tubercle bacilli by the ordinary and antiformin methods, with negative result. The urine (about one litre passed in the twenty-four hours) was free from albumin, sugar, bilirubin, and blood, but gave positive chemical reactions for urobilin and indican. Blood count (Dr. Sons, November 11, 1913): Hæmoglobin, 35 per cent.; red cells 2,336,000 in the cubic millimetre of blood; white cells 2,200. Of the white cells 60·8 per cent. were neutrophile polymorphonuclears. There was no poikilocytosis, and no nucleated red cells were seen. After December 20, 1914, there was very little pyrexia, generally none at all.

About January 7, 1914, ascites began to appear, but the patient's condition of debility seemed at that time less marked, and the spleen appeared to have somewhat diminished in size. The conjunctivæ had a subicteric tinge. Between January 9 and February 10, 1914, the ascites was tapped four times, yielding clear ascitic fluid, of specific gravity 1008 to 1010. After that there was less tendency to reaccumulation of fluid in the peritoneum. The blood was examined again on February 18 and on March 25, 1914. On both occasions there was decided leucopenia present; on the former occasion the white cells

numbered 2,600, and on the latter only 1,800 to the cubic millimetre of blood. On the latter occasion the red cells were only 1,940,000 to the cubic millimetre of blood, and a few nucleated red cells were seen. There was no poikilocytosis or marked anisocytosis.

Treatment by arsenic, &c., was tried for a time, but in April, 1914, the patient's condition was one of extreme and progressive cachexia, and she died on May 4, 1914. The spleen markedly diminished in size before the patient's death.

At the *necropsy* the heart weighed $8\frac{1}{4}$ oz. and showed a condition of "brown atrophy." Nothing special was noted in the aorta and lungs.

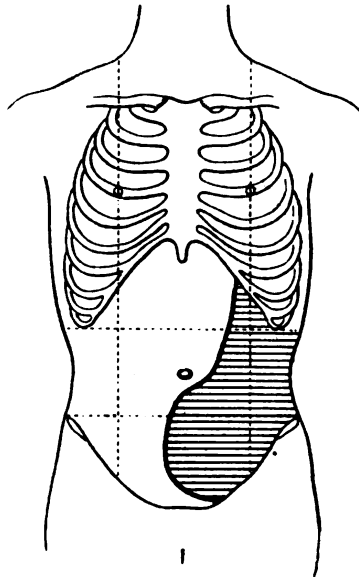


Diagram to show size of the patient's spleen.

There were some pleural adhesions and a little pleural effusion on both sides of the thorax. In the peritoneum there were about 4 litres of a bile-stained ascitic fluid. The gall-bladder contained yellow bile and a few black gall-stones. The liver weighed $48\frac{1}{2}$ oz., and microscopically there was evidence of passive congestion. The kidneys weighed both together 10 oz. and were considerably engorged with blood. The other viscera and the lymphatic glands showed nothing special excepting the spleen, which I shall now refer to. The splenic vein was not thrombosed.

The *spleen* weighed 73 oz. and measured $11\frac{3}{4}$ in. by $6\frac{1}{2}$ in. by 4 in. There were old adhesions behind and at the upper pole. It contained

some anæmic infarcts. The splenic substance was of dark crimson colour, and microscopically showed hyperplasia of the lymphatic follicles (Malpighian corpuscles), the splenic pulp between the enlarged follicles being engorged with blood. No amyloid change was present. Sir W. B. Leishman very kindly examined a piece of the spleen for me and stained sections by methods which serve to demonstrate parasites, such as malarial parasites, trypanosomes, *Leishmania*, &c., but he could find no parasites, and wrote that he could not observe anything very striking beyond the marked increase in the lymphoid elements and evidence of a good deal of cellular degeneration.

REMARKS.

The patient with her splenomegaly, ascites, subicteric tinge of conjunctivæ (suggesting hepatic cirrhosis), leucopenic anæmia and progressive cachexia, presented a clinical picture such as might be found in a late stage of so-called Banti's disease. Unfortunately, the findings at the necropsy and the microscopical examination throw very little light on the real nature of the case, which must therefore remain in the numerous group of chronic "splenomegaly of uncertain ætiology." I have elsewhere discussed the various classes of cases presenting the clinical picture of splenic anæmia (Banti's disease),¹ but the present case can hardly be fitted into any one of them. In the case, however, of a young woman, aged 23, whom I showed at a meeting of this Section on January 12, 1912, under the heading "Chronic Splenomegaly of Uncertain Origin, with Persistent Leucopenia,"² I have recently unexpectedly obtained a pathological explanation. At one time I suggested that that young woman's condition might be termed one of "anæmia splenica sine anæmiâ." The splenomegaly persisted, though the patient apparently enjoyed good health. Towards the end of 1914, however, she suffered from copious hæmatemesis, and in January, 1915, she died, soon after admission to the London Hospital. Dr. H. M. Turnbull kindly informed me that at the post-mortem examination he found a condition of complete recent thrombosis on the top of old organised thrombosis of the portal tract. He will furnish me with a summary of the macroscopic and microscopic findings as a sequel to my notes in the *Proceedings* of this Section.

¹ F. P. Weber, "A Case of Late Hodgkin's Disease, with Remarks on various Cases presenting the Clinical Picture of Splenic Anæmia (Banti's Disease)," *Amer. Journ. Med. Sci.*, Philad., 1911, cxlii, pp. 508-522.

² *Proc. Roy. Soc. Med.*, 1912, v (Clin. Sect.), p. 113.

Clinical Section.

May 14, 1915.

Mr. CHARTERS J. SYMONDS, M.S., President of the Section, in the Chair.

Case of Double Osteotomy of Tibiæ Ten Years after Operation.

By THOMAS H. KELLOCK, M.C.

PATIENT, a boy, now aged 13. When aged 3, he had badly deformed tibiæ which were much bowed outwards and forwards, and there was



Skiagram showing present condition of the bones.

a separation of the internal condyles of the femora, when the malleoli were touching, of 3 in. Open osteotomy of the tibiæ was performed, the fibulæ fractured, and the legs put up in plaster of Paris splints. The legs are now quite straight, and in the skiagram there is practically no indication of where the osteotomies were done, the line of the bone being normal. The boy is now in hospital for abdominal trouble probably tuberculous peritonitis.

A Form of Self-mutilation of the Penis in Young Boys.

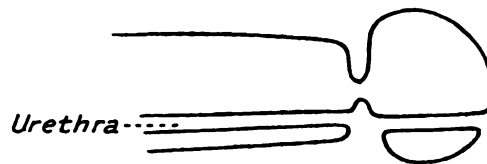
By THOMAS H. KELLOCK, M.C.

SOME years ago when I was in residence at the Hospital for Sick Children, Great Ormond Street, there were in the wards two cases of mutilation of the penis; in the one, a boy, aged 8 or 9, had passed a metal ring over the glans, which had remained in position for a considerable time, and had caused so much swelling that it was only discovered after incisions had been made; the ring had ulcerated through the floor of the urethra, and I well remember the great trouble that was entailed in closing the fistula. In the other case, in a boy aged about 3, a piece of cotton was found twisted tightly round the centre of the glans, and this had also cut the urethra partially across. The child asserted that his mother had put it there because he wetted the bed. Needless to say, she stoutly denied this, and I think her version that the child had done it himself was probably the correct one.

Within the last few years I have had under my care three cases of a somewhat similar character, resembling each other so closely that it would appear to be rather a common occurrence. Speaking, however, to surgical friends on the subject, I find scarcely anyone seems to have met with such cases, and so I suppose they are more rare than I had thought. Of the three cases, two were private ones, and one in the Great Ormond Street Hospital; in all of them a hair twisted round the penis just behind the glans was the cause of the trouble. The last case I saw was so typical that a description of it covers the others. The patient was a boy, aged 5. When aged 3, he had been circumcised for some difficulty in micturition; soon after the operation there was some ulceration behind the glans, but the cause or nature of this was not very clear from the history. Eighteen months before I saw him there

was evidently something wrong which led the mother to examine the penis, and she found a piece of hair hanging round it, as she expressed it. The free part of this, about 4 in. in length, she cut off. This did not bring about any improvement, and a few weeks before I saw him he was found to be passing all the urine from an opening on the under surface of the penis.

When I saw the boy, in January of this year, the glans penis was considerably enlarged, very hard, and somewhat dusky in appearance; it was almost completely separated from the rest of the organ, the isthmus connecting them being only $\frac{1}{8}$ in. across, and the urethra was completely divided. Epithelium had grown down both faces of the sulcus and across the isthmus, so that there was no raw surface. Under an anæsthetic the use of a crochet-needle at once detected a human hair tightly twisted three times round the isthmus.



Diagrammatic longitudinal section of penis.

The history and condition in the other two cases was practically exactly the same, except that no hair had been seen or removed. The children had both been circumcised, and there was a long history of ulceration and swelling followed by the formation of a fistula, and in both of them the urethra was found completely divided. In two of the three cases the children had long hair, and I thought what I removed was one of their own, but in the case I have described the hair that was removed was dark, whereas the child was fair. The mother's explanation of this was that the boy slept in the same room as a "lady help" who had dark hair and he might have obtained one of hers.

The condition in all these cases had been of long standing, and from want of recognition of the cause had been allowed to go on until complete division of the urethra had resulted. My impression is that it is brought about by the children themselves; that they twist the hair round behind the glans which has been exposed by the circumcision, and subsequent erections cause it to cut in, but it is difficult to explain why this process should continue until it has divided the urethra.

The father of one of the children, writing to me some time later, says: "Very curiously, the doctor who treated him when he left the Home had an exactly similar case recently, but owing to the experience he gained with our boy he was able to locate the trouble, and found six strands of hair which had cut through to the urethra but had not actually cut it."

Prevention is of course better than treatment. This is one of the troubles that may follow a complete circumcision with permanent exposure of the glans, and so is an argument in favour of a modified operation where some prepuce is left. Failing prevention, an early recognition of the cause and its removal would prevent serious consequences. When the latter, in the shape of a deep sulcus, a narrow isthmus and division more or less complete, of the urethra, have occurred, a plastic operation must be performed, and this is a matter of considerable difficulty. I am glad to say that in two of the cases I have been able to promote adhesion between the divided surfaces and re-establish the urethra; in the other case the attempt to do so was followed by gangrene of the glans, and so the child is left in the unfortunate condition of having a penis without a glans, and the possibility of trouble with stricture at the opening of the urethra, but fortunately up to the present this has not occurred.

PROCEEDINGS
OF THE
ROYAL SOCIETY OF MEDICINE

VOLUME THE EIGHTH

COMPRISING THE REPORT OF THE PROCEEDINGS FOR THE
SESSION 1914-15

DERMATOLOGICAL SECTION



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1915

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The Society does not hold itself in any way responsible for the statements made or the views put forward in the various papers.

Dermatological Section.¹

October 15, 1914.

Dr. J. J. PRINGLE, President of the Section, in the Chair.

Case of Chronic Septic Papillomata.

By E. G. GRAHAM LITTLE, M.D.

THE patient was a lady, aged 65, who had been for some six years under the care of Dr. Francis Nunn, to whose kindness the exhibitor was indebted for permission to show the case. The history, confirmed by this gentleman, was that during the past six years there had been continually present upon a restricted area, triangular in shape and situated upon the outer half of the right breast, a number of soft, non-pigmented warts, which were always covered with a thick roof of inspissated discharge, very like the condition seen in so-called gonorrhœal warts. These tops could be easily detached, leaving a moist and oozing surface at the summit of the underlying wart. There was constantly friable detritus covering the area, and a good deal of offensive discharge from the interstices of the individual warts. These were very numerous, and in fact covered the outer half of the breast. The patient said that on the area now occupied by these growths there had been a "birth-mark" of the nature of a pigmented flat mole, about the size of a sixpenny-piece, on which about twelve years ago the earliest warty tumours had developed. There were no subjective sensations connected with them, and she absolutely refused any operative measure. The right axilla was quite free of any glandular enlargement. There was no syphilitic or gonorrhœal history. She was in fair general health, but had recently lost some weight. There were no warty growths anywhere else, and there had never been any ulceration or excessive bleeding from the affected part. Some of the warts had been scraped, but tended to recur in situ. Occasionally there was complete spontaneous involution of the growth, leaving a perfectly normal surface.

¹ **CORRIGENDUM.**—Please strike out "(? Epitheliomatous)" from title of Dr. Sequeira's case on p. 261 (*Proceedings*, vii, No. 9, July, 1914), and add it after the title of Dr. Colenso's paper (to which it belongs) on p. 263. Also please correct corresponding entries in the Index.

Case of Lymphatic Leukæmia.

By W. KNOWSLEY SIBLEY, M.D.

A BOY, aged 16, who had had a skin eruption for the last eight years, was shown at the meeting of this Section¹ held in July last: his case, with microscopic sections, had been referred to the Pathological Sub-Committee for a report. Since that date several important changes had occurred. The eruption, which at that time was absent from the middle of the chest and the interscapular regions, had now covered these areas, the condition of the rest of the skin had become obviously worse, and the general infiltration had become more marked. The papular eruption had everywhere increased and become more prominent; the tumour-like formations at the back of the neck had also considerably increased in size, and were now as large as Tangerine oranges; so also the general enlargement of the lymphatic glands had become more pronounced, especially about the sides of the face and the neck regions. The only other part of the body which was free from eruption when he was shown in July was the scalp region, and now small nodules were appearing in the occipital region. The papules on the face had somewhat diminished in prominence, but on all other parts of the body they had increased. The patient stated that the skin was not irritable during the daytime, but became so at night; there were, however, no scratch marks to be seen, nor had there been any recurrence of the bullous eruption which was present previously. The liver and spleen could now both be felt just below the costal arch.

At the time of the previous examination the differential leucocyte count was practically normal; now, however, marked changes had occurred, as follows: Polymorphonuclear cells, 34·159 per cent.; lymphocytes, 32·30 per cent.; mast cells, 31·85 per cent.; eosinophiles, 1·76 per cent.²

The urine still contained albumin, but only a trace. The specific gravity was 1030; there was no sugar, blood, or pus. The deposit contained crystals of sodium urate and calcium oxalate, some squamous epithelium, but no casts.

¹ *Proceedings*, 1914, vii, pp. 276-281.

² Dr. Sibley reported subsequent to the meeting that the hæmocytometer count was: Red blood cells, 4,750,000 per cubic millimetre; white cells, 23,600 per cubic millimetre.

The œdema of his legs had subsided. The boy was now obviously anæmic and was losing ground. The mucous membranes remained free from lesions, and no obvious lesions were present in the larynx.

Laryngoscopic Report by Philip R. W. de Santi, F.R.C.S.—The nasopharynx shows some thickening of the post-nasal lymphatic tissue; this is also slightly noticeable in the pharynx as well. The larynx shows marked pinkness of the right true vocal cord, with a less degree of the left true vocal cord. There is thickening of the interarytænoid region. Movements of the cords are quite free, but approximation of the vocal cords on phonation is not quite complete, a slight space being noticeable in their middle region.

DISCUSSION.

Mr. McDONAGH said he had seen the case at the meeting of the Pathological Committee. He would like to draw attention to the fact that the rash on the upper part of the thigh was confluent, and not so discrete as on the trunk, and less papular. The thigh rash was very much like a generalised skin eruption, which he had seen only in Jews from Poland and Galicia. This eruption was always followed later by a pronounced enlargement of the lymphatic glands in the groins, and the enlargement gradually spread to all the other lymphatic glands in the body. Finally the patient developed leukæmia and died. He regarded this condition and that of the case shown as identical, differing only in the fact that the case presented was severer and more acute. In his opinion the diagnosis was leukæmic cutaneous lymphocytoma.

Dr. F. PARKES WEBER considered that the differential blood count was a very remarkable one, and suggested that an ordinary, in addition to the differential, count should be made. It was a remarkable differential count, even for lymphatic leukæmia. If the cutaneous condition were still more advanced than it was at present, and if the nodules were to become confluent, the patient's face would present the typical "leonine" appearance which had been described as one form of pre-mycotic skin condition in granuloma fungoides. He (Dr. Weber) had once seen a man with a "leonine" face of that kind, and the case turned out to be one of leukæmia. He thought the cases described by Kaposi under the heading *lymphodermia perniciosa* were examples of leukæmia in which the "leonine" or "pseudo-leprous" type of granuloma fungoides was simulated: but at one time it was supposed that Kaposi's lymphodermia perniciosa was merely an occasional pre-mycotic stage of granuloma fungoides, though Kaposi himself had laid stress on the ultimate occurrence of associated morphological blood changes.

**Case of a Lichenous Eruption for Diagnosis (Pityriasis
Rubra Pilaris).**

By J. J. PRINGLE, M.B.

THE patient was a married woman, aged 57, who was admitted to the skin wards of Middlesex Hospital on September 28. Her family and personal history were unimportant. She had never previously had any skin affection. Before the appearance of the eruption on June 22 she had been dyspeptic and out of sorts for some weeks. On that date an irritable patch appeared on the right cheek and spread over the face. Soon afterwards there was great burning, with redness and swelling of the arms, forearms and hands, and subsequently of the thighs, legs and feet. These intense inflammatory phenomena had greatly diminished since her admission to hospital, but the cardinal features of her disease persisted. The essential lesions were in great abundance and best seen over the neck and upper parts of the back and chest. They consisted of innumerable papules of both plane and acuminate type, occurring discretely as well as in groups and composite patches of the most variegated patterns. The plane papules were flat, polygonal, shiny, of characteristic colour, and with fine striation and central dells, while the acuminate papules were capped with fairly firmly adherent thick epidermic scales. The chief changes which had occurred under observation consisted in the detachment of the epidermic caps from the acuminate lesions, and in the increased scaliness of the plane lesions, which had coalesced in many places, thus forming plaques almost as heavily scaled as patches of psoriasis. Over the face there was a quite indeterminate diffuse but patchy erythema with some desquamation. The scalp, which was quite normal on admission to hospital, had become somewhat pityriasic in the previous week. No change in the buccal mucous membrane which could be recognised as lichenoid was present. The arms, forearms, hands, thighs, legs and feet were the seat of diffuse dry dermatitis without any appreciable degree of infiltration. There was very marked desquamation of the soles with fissuring, and a similar condition had been present on the palms. No history of special involvement of the backs of the proximal phalanges of the fingers could be elicited. The desquamation over the limbs generally was fine, but over both legs the epidermis separated in large papery sheets, disclosing a dry surface underneath.

The nails both of hands and feet were unaffected. The patient's general condition was good; the urine was normal, and the Wassermann reaction negative.

The treatment adopted had been permanent rest in bed, salicin in full doses internally and salicylated oil externally.

The case had been brought for diagnosis as different views had been expressed on the subject. Was it (1) a pityriasis rubra pilaris, or (2) a lichen ruber planus with an unusual predominance of the acuminate follicular papule? Points in favour of the former hypothesis, which he had adopted, were: (a) The large number of scale-topped acuminate papules; (b) the severe involvement of the palms and soles; (c) the absence of lesions on mucous membrane; (d) the papery, thin sheets of desquamation on the legs; (e) the debut of the eruption on the face and its subsequent appearance on the scalp, although to a mild degree; (f) the absence of conglomerate plaques with the typical colour and characteristics of lichen planus. Nevertheless, the presence of a large number of primary lesions indistinguishable clinically from those of lichen planus—and maintaining their distinctive characters throughout—suggested the possible coexistence of the two diseases; generally considered as being distinct, but potentially due to a common exciting toxic cause, the precise nature of which was quite unknown.

The exhibitor had seen two examples of a similar association in private in the last two years, the cases being practically identical with that shown. Both occurred in women of middle age, and both ran a favourable course, lasting about six months before perfect recovery ensued.

DISCUSSION.

Dr. J. H. SEQUEIRA said that during the last three months he had had under his care a case which began in a similar manner. The patient, a middle-aged woman, was sent to him by Dr. Vilvandre. When first seen she had an acute erythematous eruption on the face and hands, which rapidly became general. He took her into hospital for a time, and gradually the erythrodermia subsided and she was now a typical case of lichen planus.

Dr. ADAMSON regarded the case as a typical pityriasis rubra pilaris, typical in all respects except for the absence of follicular papules from the backs of the fingers. The case bore some resemblance to an acute lichen planus, and thus recalled the old controversy as to the relationships of pityriasis rubra pilaris of Devergie and Besnier, lichen ruber acuminatus of Hebra or Kaposi, and lichen planus of Wilson. It had been finally settled towards the end of the last

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century that pityriasis rubra pilaris and lichen ruber acuminatus were identical affections, distinct from lichen planus; and he felt it would be going back to the old confusion to call this case a combination of pityriasis rubra pilaris and lichen planus. The resemblance of the individual papules of pityriasis pilaris to the flat-topped, shiny papules of lichen planus was only apparent, and there was no histological resemblance. In the speaker's opinion, pityriasis rubra pilaris had more affinity with psoriasis, and he had published several cases in which patients had pityriasis rubra pilaris and psoriasis alternating, or in which the two affections occurred in one family. It was interesting to recall that the first recorded example of pityriasis rubra pilaris was a case observed in this country, in St. Bartholomew's Hospital, in 1828, by Dr. Tarral; that it was communicated by Tarral to Rayer, who described it as a general psoriasis; and that it was subsequently quoted by Devergie as an example of his new disease pityriasis rubra pilaris.

Dr. MACLEOD regarded the case as one of pityriasis rubra pilaris, and considered that an important point of diagnostic value against generalised lichen planus was the presence of well-defined clear areas in the midst of the eruption.

The PRESIDENT (Dr. J. J. Pringle), in reply, said he thought his remarks scarcely warranted the construction put upon them by Dr. Adamson, as he had enumerated six reasons in support of his personal opinion that the case was a pityriasis rubra pilaris. An additional point in support of that view was the inconsiderable amount of itching complained of. He had brought the case forward as one "for diagnosis" only with a view to stimulating discussion; and he had been rewarded by eliciting the opinion in more than one quarter that the case was a lichen planus. In watching its evolution while in hospital he had observed that the primary eruption elements were both, and equally typically, "plane" and "acuminate." Nor in their involution had any of the "acuminate" lesions become "plane." On the other hand, no purplish, pigmented, conglomerate plaques, so characteristic of lichen planus, had formed. The case was, indeed, identical with those he remembered under Hebra and Kaposi in Vienna nearly forty years ago, which had given rise to immense confusion. It was only at the first International Congress held in Paris in 1889 that it was decided, to the satisfaction of a large majority of members, including himself, that many cases at least of the condition described by Hebra as lichen ruber acuminatus were identical with the pityriasis rubra pilaris of Devergie, and were therefore clearly distinct on clinical and pathological grounds from other diseases included under the term "lichen ruber" by the Vienna school.

Case of Sarcoid.

By J. H. SEQUEIRA, M.D.

THE patient, a married woman, aged 43, had enjoyed good health with the exception of two attacks of quinsy in her adolescence. She had five children alive and in good health: one died when aged 12 months in convulsions, and she had had one stillborn child seven years ago. There was no history or evidence suggesting syphilis, and the Wassermann reaction was negative. There had been no glandular swellings or other sign of tuberculosis.

In March, 1912, the patient felt a small lump about the size of a pea in the middle of the chin. A month or six weeks later a dark red patch appeared on the chin over this lump. This slowly increased, and in September, 1912, she consulted a medical man who thought the lesion was probably a cyst. She was advised to leave the tumour alone unless it became inflamed. In January, 1913, a similar smaller lump appeared to the left of the former lesion, and since then the growths have been slowly increasing.

In the middle of the lower portion of the chin was a lobulated mass, apparently connected with the skin. The colour was purplish-red and the surface was smooth. The tumour on palpation felt like an irregular flat plate in the skin. It was freely movable over the deeper tissues. In March, 1913, it was the size of a florin, but when shown it was one-third larger, and of a generally oval shape, though the edge presented distinct lobulation. To the left and above this lesion there was a similar lesion rather larger than a sixpenny-piece.

A portion of the tumour was excised and was reported by Dr. Turnbull to be a granulomatous infiltration of the skin. The lesion was obviously inflammatory and there were a few giant cells in the section. There were no tubercle bacilli present.

Dr. Sequeira had ventured to class the condition as a sarcoid. This name had been applied to several conditions. Darier and Roussy¹ described under this appellation chronic indolent neoplasms in the hypoderm, the lesions having no tendency to ulceration. They occurred most often in females aged between 30 and 40. They varied in size from

¹ *Archives de Méd. exper. et d'Anat. path.*, Par., 1906, xviii, pp. 1-50.

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a pea to a nut and were often in nodular patches. As a rule they occurred on the chest, but might appear anywhere. Giant cells and lymphocytes were found in sections. Other lesions had a fibrous capsule. Tubercle bacilli had not been demonstrated. Boeck's multiple benign sarcoid, on the other hand, was of two varieties: (1) A small nodular type, where the lesions varied in size from a millet-seed to a pea. A case called "tuberculides," but believed to be of this type, had been shown by the exhibitor.¹ (2) A nodular type in which the lesions might be as large as a small nut. The swellings had a purplish tint and occurred in two, three, or a dozen discrete tumours on the forehead, neck, shoulders, limbs, &c.² (3) The case described appeared to be more closely related to the second type described by Boeck, as the nodules were definitely intradermic.

So far treatment had been unsatisfactory.

The PRESIDENT said he had no alternative diagnosis to offer, although "sarcoid" might not be regarded as a quite satisfactory pronouncement nowadays. He thought the localisation of the lesion was very unusual; he had usually seen "sarcoids" on the limbs and trunk.

Sarcoma of the Skin, &c., secondary to Tumour of the Foot.

By J. H. SEQUEIRA, M.D.

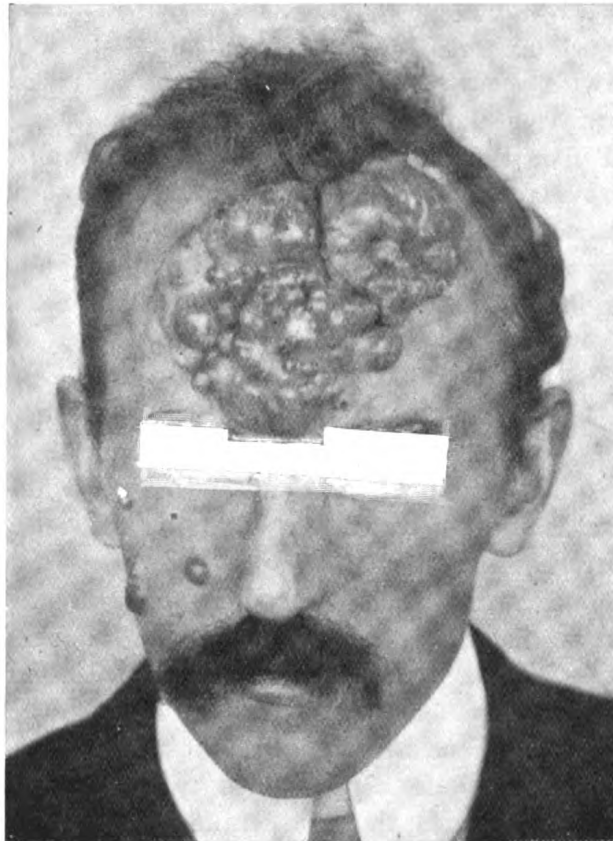
With Report on Histology by HUBERT M. TURNBULL, M.D.

J. L., AGED 41, a pale, somewhat emaciated man, was sent to the London Hospital on September 20 by Dr. Sydney Harper. In June, 1914, the patient noticed an area of redness of the skin of the forehead. There was little swelling present at this time. Upon the supposition that the eruption was possibly of toxic origin, all the patient's teeth were removed by a dentist. A plate was made for him, and he wore this for a fortnight, and this made the gum and the upper jaw on the right side sore. Shortly after this soreness had developed a "lump" was noticed. At the same time the redness of the forehead increased and the surface became distinctly raised. The elevations were numerous small, pink, smooth, soft, rounded tumours clustered together "like a bunch of grapes" in the middle of the forehead. These tumours were

¹ *Brit. Journ. Derm.*, 1910, xxii, p. 60.

² C. Boeck, *Archiv f. Derm. u. Syph.*, 1905, lxxiii, pp. 71, 301.

first obvious when about the size of a small pea. They rapidly increased in size and two large growths developed upon the scalp over the vertex above the lambdoidal suture; small pink, soft growths also developed upon the cheeks. The distribution and general appearance in forehead and cheek tumours are seen in the figure taken soon after the patient's admission. In addition to these there were two soft tumours in the scalp rather larger than walnuts. On palpation the tumours felt soft



Case of sarcoma of the skin.

and had a definite pseudo-fluctuation suggesting the consistence of over-ripe fruit. On puncture a glairy mucoid material with a little blood was removed. There were two tumours, apparently enlarged lymphatic glands, in the right popliteal space. There was a red swelling about the size of a walnut attached to the upper jaw on the right side, opposite the position of the bicuspid tooth. This swelling was rather harder than the forehead tumours, but its surface was

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ulcerated and a sanious discharge exuded from it. The growth here was large enough to cause the definite protuberance of the cheek and lip noticeable in the photograph.

At first sight the growths might have been mistaken for the well-known endothelioma which is sometimes known as "turban tumour." Portions of the growth were removed and sent to Dr. Turnbull for examination. He reported the growth to be secondary deposits from a chondrosarcoma. In view of this opinion, the fact that the patient's right foot had been amputated in 1910 at Westminster Hospital became of supreme importance. Dr. Sequeira's clinical assistant, Dr. Alderton, communicated with the Registrar at that institution, who very kindly furnished him with the following information: Syme's amputation had been performed upon the right foot for an unusual swelling, which at first suggested tuberculosis. Portions of the soft material from the foot were examined in the Clinical Laboratory at Westminster Hospital and the report made was: Sections show small fragments of bone cartilage undergoing myxomatous change, small round cells, blood-clots, but no evidence of malignancy or tuberculosis.

REPORT ON HISTOLOGICAL EXAMINATION BY DR. TURNBULL.

Macroscopic.—A portion of tissue, one surface of which is covered with skin and measures 0·7 by 0·5 cm. Its greatest depth is 0·25 cm. The greater part of the outer surface is occupied by a papule. On section the papule corresponds to a nodule of pink, glistening tissue lying beneath the epidermis. Both segments embedded in paraffin.

Microscopic.—Both sections consist of a small piece of horny skin in which there are a few sebaceous glands and hair-follicles. In the dermis, at a little distance beneath the epidermis, is a segment of a rounded nodule. The nodule is surrounded by a capsule of collagenous tissue which is denser than the rest of the dermis, and contains no elastic fibres. Trabeculae pass in places from this capsule and divide the whole incompletely into rounded lobules. There are a few capillaries within, or at the side of the trabeculae. The lobules have a mucoid matrix. In this matrix lie polygonal, round and, less commonly, spindle and stellate cells. The spindle and the stellate cells lie in the periphery. The round and polygonal cells lie at a considerable distance from one another; they have a relatively abundant, spongy protoplasm, and a small, deeply stained nucleus. In several cells there are two nuclei. Occasionally two cells lie together, their opposed

surfaces being compressed. The tissue therefore resembles mucoid cartilage, although pericellular capsules, the characteristic of cartilage, are not present. The capsule round the nodule is evidently perichondrium. The dermis contains, therefore, portions of nodular masses of mucoid, atypical cartilage. There are, doubtless, secondary deposits from a chondrosarcoma.

**Case of (?) Xerodermia Pigmentosa of Anomalous Type ;
(? Sun Dermatitis).**

By H. C. SAMUEL.

THE patient was a man, aged 39, who had never been abroad, who consulted the exhibitor last April. The following is a brief summary : The condition began over three years ago, as the patient stated, "with small red spots which seemed to be below the skin ; it commenced in the region of the chin and lower lip. This spread by degrees, and in about eighteen months attained its present size." He had no recollection of any pustulation or irritation in the situations affected, so that a preceding sycosis might be excluded. Just before the condition appeared he lost two children in a fortnight ; he personally put the condition down to shock from that cause. Before consulting the exhibitor he had been treated by another medical man with drugs and ointment for fifteen months. He had never had any X-ray treatment or any other form of light treatment. He volunteered the statement, without any leading question being put, that wind and exposure to sun very much aggravated the condition. No members of his family had suffered similarly. Two of his children had died of whooping-cough. He had one child living and quite healthy, now aged $2\frac{1}{2}$.

The area occupied by the condition corresponded to the beard region ; the upper margin on both sides was bounded by a line drawn from the angle of the mouth to the malar eminence and then along the margin of the hairy scalp to the ear. Below, the boundary ran horizontally outwards from the lower margin of the thyroid cartilage to a line drawn vertically from the posterior margin of the helix on the right side and from the centre of meatus on the left side. The skin of this area was thin, atrophic, and either dead white in colour or stained with brown pigment spots. The whole area was covered with well-marked dilated capillaries, most marked in the lower part of the

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patch on the neck. The mucous membranes of the lips were affected, but there was no obvious abnormality inside the mouth. The areas affected were almost devoid of hair.

The condition reminded the exhibitor of radio-dermatitis when he was first consulted. The area affected was one which was most exposed to light, and it was sharply limited below by the upper margin of his collar, and the most shaded parts of his face had escaped. It thus suggested the importance of light rays as an ætiological factor, but that there must be some other very potent cause underlying the condition was of course obvious. Why did his skin suddenly show this peculiar reaction to the sun's rays? Dr. Gray's original view was that the case was possibly a rare type of xerodermia pigmentosa (Kaposi's disease), but in many ways it differed from those usually seen or described. In this patient it began at the age of 36. The majority of the cases began in infancy, and very exceptionally as late as the sixteenth year. This case differed from xerodermia pigmentosa in the sequence of events. The development of telangiectases was followed by atrophy and then by a few scattered pigmented spots, the older the lesion the more atrophic and white was the area.

In xerodermia pigmentosa the first thing noticed was a number of lentiginous spots not unlike freckles, worse in summer and tending to improve in winter (no such history was obtainable in this case), the scalp, neck, shoulders, hands and forearms being affected as well as the face (in this case the face alone was affected). The next event in Kaposi's disease was the development of telangiectases, followed by the appearance of irregularly scattered white spots. Sooner or later some of the pigmented spots took on malignant changes, an excellent example of which had been shown by the President last session.¹ In this case no similar condition was to be noted in the family, and although not necessarily so, yet it was often a family disease. Norman Walker relates the narrative of a family of daughters all of whom had xerodermia pigmentosa, although their parents, by previous marriages, had perfectly healthy children. Although the above was Kaposi's original description of the sequence of events, Duhring and others considered that that sequence varied.

The atrophic stage of sclerodermia was to be considered, but the site, distribution, and other features of the case negatived that diagnosis. Could the case be one of idiopathic atrophy of the skin excited by the sun's ultra-violet rays, and not connected at all with Kaposi's disease?

¹ *Proceedings*, 1914, vii, pp. 149-154.

DISCUSSION.

Dr. ADAMSON said he felt convinced that the condition was an X-ray dermatitis, the result of a treatment for removal of the beard. It was comprehensible that the patient should decline to admit having undergone that treatment for such a purpose. The area of dermatitis and of long hair had a sharp margin, and the distribution under the chin was obviously not the result of sunburn.

Dr. SIBLEY also thought at first sight that it was X-ray dermatitis, but recently he saw, at hospital, a man in middle life who came with typical X-ray dermatitis on the backs of both hands, telangiectases and warty conditions, which had been there for ten years. The warts came off from time to time, leaving ulcers; and then they came back again. The man had been a stonemason in South Africa, where he worked all day in the sun chipping marble. During that time his hands were constantly covered with marble dust. A brother of his had been working with him in the same line and was stated to have much the same condition, and the patient promised to send him to the hospital, but had not done so. The patient had now been in England five years and the condition remained stationary. He had wondered whether the sun's rays acting on the skin through its covering of marble dust produced a chemical irritating action — i.e., a dermatitis indistinguishable from that caused by X-rays. Years before, the man said his face was very sensitive, and peeled with very little exposure.

Dr. GRAY said that possibly Dr. Adamson was right concerning the case; but he (Dr. Gray) admitted that he believed the patient when he said he had had no X-rays, and he thought the explanation advanced by Mr. Samuel was the only alternative. When employing the term "xerodermia pigmentosa," he did not intend to imply that this case would run the same kind of course as that of Kaposi's disease, but he had regarded all these types of cases as due to the sun's rays plus some other factor, the nature of which was at present unknown.

Dr. MACLEOD said he did not consider that the case was one of chronic solar dermatitis, as the area affected was too clearly defined and avoided such exposed parts as the ears and the nose.

Dr. J. H. SEQUEIRA said that as soon as he saw the case he thought of X-ray dermatitis, on account of the definitely limited area, which extended under the chin. Telangiectases and the tendency to warty growths occurred in so-called "tropical skin." But this case did not look like that.

Dr. A. EDDOWES asked whether it would not be possible for the patient to damage the skin, without the application of X-rays, by using depilatories in excess, and so render the skin liable to dermatitis from ordinary exposure to weather.

The PRESIDENT said the case was a very puzzling one. Personally, he could not relegate it to the category of xeroderma pigmentosa, even to the senile form which had been described. The most important paper on that subject which he remembered was by Falcao, of Lisbon, which was read at the Third International Congress of Dermatology in 1896,¹ and in which a considerable number of cases were described as occurring in old age, these following fairly closely the course of ordinary xeroderma pigmentosa. Mr. Samuel had advanced his diagnosis with great hesitation, and ought not to be pinned down to it too firmly. He (the President) had tried hard to accept the patient's statement that he had never been exposed to X-rays; but his diagnosis, based upon the objective characters of the condition, coincided fully with Dr. Adamson's. The distribution of the disease was not that of ordinary solar dermatitis, while it accurately corresponded with the area of an X-ray beard depilation. Possibly the mentality of the patient was that of the hysteric, whose motives for action and powers of concealment were often as remarkable as they were incomprehensible.

Case of Multiple Soft Fibromata.

By S. ERNEST DORE, M.D.

PATIENT, a boy, aged 17. There were numerous lesions, of about nine years' duration, varying in size from a pin's head to a cherry, scattered irregularly over the trunk. The majority were small, soft, hernia-like, hemispherical tumours of a brownish colour, but some had a slightly bluish tint, and there was also a large, soft, lobulated mass on the nape of the neck. In addition to the above, a growth the size of a large pea had been recently excised from the centre of the dorsal surface of the tongue.² A few of the tumours had disappeared spontaneously, leaving small cavities which could be felt by the finger. There were no nervous phenomena and no pain or tenderness, and the tumours did not appear to be attached to nerve trunks or situated along the course of nerves. On the right side of the neck there was an oval patch of pigmentation which had at first sight escaped notice. The exhibitor asked if this case should be included in the category of von Recklinghausen's disease, and whether, seeing that the tumours were localised congenital overgrowths of the skin, the case could not be classified as a systematised nævus, according to that definition of the

¹ *Internat. Congr. Dermatology (Third)*, (London, 1896), 1898, p. 280.

² Subsequent microscopical examination showed this growth to be an angioma.

term. He ventured to protest against the grouping together of such diverse conditions as angioma, nævus linearis, leiomyoma, lymphangioma, &c., as nævi.

DISCUSSION.

Mr. McDONAGH said he considered the condition was a case of neuro-fibromatosis, or what was sometimes called von Recklinghausen's disease. The points in favour of that view were, the bluish appearance of some of the lesions, the sacculatation of those and the pit to be felt on pressure. Because the lesions appeared to be scattered anywhere on the body it did not follow that they were not arising in nerves, since several nerves might be affected. It was more common for several nerves to be affected than for several lesions to occur in the course of one or more nerves. The lesions usually commenced in the endoneurium of the cutaneous nerves, and it was only when the lesion had reached a certain size that the nerve-fibres were destroyed. Degeneration of the newly formed fibrous tissue generally occurred, and this accounted for the sacculatation and depression left by some of the lesions.

Dr. F. PARKES WEBER said it was surely a question of terminology. The present case was one of molluscous fibromata, and whether all cases of molluscous fibromata were included in von Recklinghausen's disease depended on one's definition. In "complete" examples of von Recklinghausen's disease, according to the original description, there must also be deeper tumours, probably connected with the nerves, and patches of pigmentation about the skin like that on the right side of this patient's neck. This boy presented only two of these three elements. Dr. Weber, however, considered that cases of molluscous fibromata ought to be regarded as *incomplete cases* of von Recklinghausen's disease. Patches of cutaneous pigmentation similar to those which occurred in von Recklinghausen's disease were common in persons who had no other sign of anything abnormal, and had then to be regarded as the simplest (most superficial) form of cutaneous pigment-nævus. He very frequently came across such patches of superficial cutaneous pigment-nævus (exactly resembling the cutaneous pigmentation of von Recklinghausen's disease) on the trunk or limbs of patients suffering from all kinds of diseases. On inquiry, these patches were generally said to have been present from infancy or childhood.

Dr. GRAHAM LITTLE agreed with Dr. Parkes Weber that while it was desirable to restrict the use of the term "von Recklinghausen's disease" to the cases in which the syndroma described by that writer was present, it was none the less true that in several cases one or other of the cardinal symptoms had preceded, sometimes by years, the development of the full syndroma. He had had cases in which fibromata had existed for a long period before pigmentation was noted, and other instances in which pigmentation was the first symptom, to be followed later by the eruption of tumours.

The PRESIDENT said it was a question of nomenclature, pure and simple. If cases such as the present were to be accepted as instances of von Rœcklinghausen's disease, then the term "molluscum fibrosum" must disappear from our nomenclature.

Case of Subcutaneous Fibrous Nodules on the Face and Hands, for Diagnosis.

By H. G. ADAMSON, M.D.

THE patient, B. W., a fruit warehouseman, aged 39, had a nodular condition of the upper part of the face which recalled the appearance of leprosy; but he had never been abroad, and on palpation the nodules were found to be very firm, apparently subcutaneous, and situated over bony enlargements. There was no redness of the skin. The nodes were symmetrically arranged and were situated around the orbit and at the sides of the bridge of the nose. At the outer extremities of the superciliary ridges and over the malar bones there appeared to be bony prominences beneath the subcutaneous nodules, and the nasal bone on either side was so much thickened that it gave the appearance of the tropical disease "goundou." The swellings at the side of the nose had begun three months ago, and the other swellings had gradually followed. On the backs of the first and second fingers and of the thumb of each hand were a few subcutaneous nodules recalling rheumatic nodules, except that they were rather more fixed in the skin. There was a considerable nodular thickening of the skin of the back of the neck at the level of the lower margin of the scalp.

The patient had had pleurisy, but neither rheumatism nor rheumatic pains. He had had bad headaches since the swellings first appeared.

A nodule removed from one finger felt very hard when cut into, and macroscopically had the appearance of fibrous tissue. Microscopically it was found to consist of a dense fibrous tissue, with small infiltrations of lymphoid cells around the blood-vessels of the upper part of the corium.

DISCUSSION.

The PRESIDENT said the case presented some points of resemblance to erythema diutinum, especially the lesions about the hands and fingers; and the microscopical appearances were apparently similar. The involvement of bone, however, introduced a new and inexplicable factor. He hoped Dr. Adamson would bring the case forward again.

Dr. F. PARKES WEBER said he regarded the nose enlargement as osseous. The condition occurred in the Tropics,¹ but it also was met with in Europe. He regarded it as a form of leontiasis ossea (possibly allied to "osteitis fibrosa").

Case of Lupus Exuberans with Miliary Lupus.

By H. G. ADAMSON, M.D.

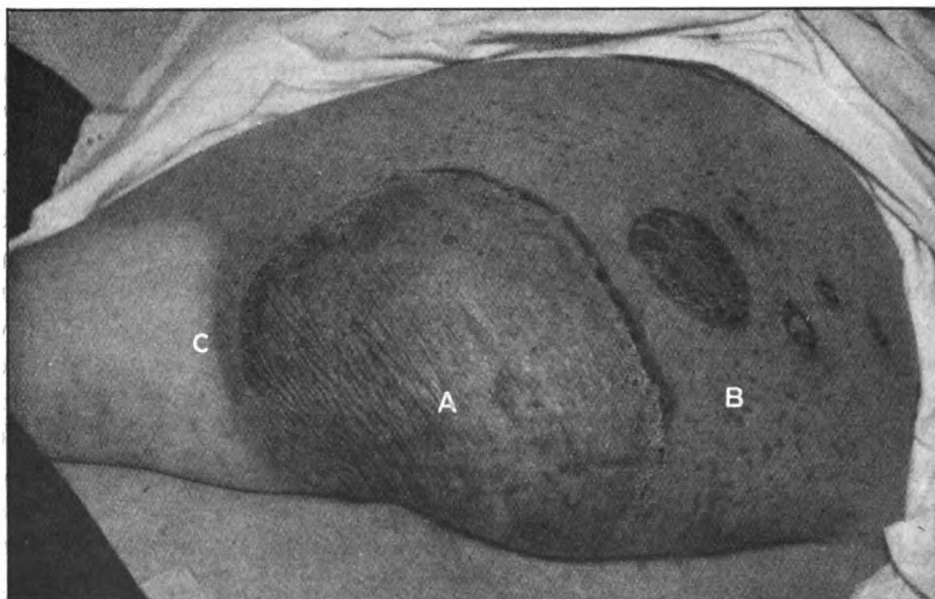
A. H., aged 31, a stoutish, heavy woman, unmarried, presented on the left buttock a large, circular, sharply bordered area, of dense plate-like infiltration, which measured 14 in. across and occupied the greater part of the buttock. The central part of the infiltration was scarred; the outer part was dusky-red and flatly nodular; the extreme margin was ulcerated in the form of a narrow, crenated fossa, with here and there crusting. Beyond the main mass of infiltration were several smaller patches. The buttock and adjacent part of the thigh seemed firmer and harder than normal, and very numerous reddish-brown, hemp-seed-sized nodules embedded in the skin were scattered over this area. The patient stated that the condition had been present only seven months. There was a large scar on the left knee which she said was the remains of a similar patch which had been present seven years ago and which had been cured by the application of an ointment during several years. The exhibitor's first diagnosis had been that of tertiary syphilis, which he had based on the short history, the scar of former healed lesions on the knee, and the punched-out, ulcerated edge of the infiltration. The Wassermann reaction was negative, and treatment by mercury and potassium iodide had no effect. Three weekly doses of neo-salvarsan (0.6 gm.) were also given without any improvement. The diagnosis of lupus now offered was probably the correct one. This was supported by a strongly marked cuti-reaction to tuberculin and by the microscopical sections (exhibited) of the lesion, which showed numerous large giant cells characteristic of lupus and unlike those found in syphilides.

The following were noteworthy features of the condition: (1) The very rapid, almost sudden onset; (2) the numerous miliary nodules

¹ See the description of "goundou" or "anakhra" in Sir Patrick Manson's "Tropical Diseases," 5th ed., 1914, p. 888. In regard to the fibrous nodules on the fingers in the same case, Sir J. Hutchinson's remarks may be referred to, *Edinburgh Med. Journ.*, March, 1897, p. 283.

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beyond the main infiltration, set in an area which showed evidences of general cellulitis; (3) recurrent attacks of redness and swelling of the buttock and thigh which had been noted while the patient had been under observation. The first attack occurred eight days after the third injection of neo-salvarsan, with sudden pain in the left thigh and the appearance of a wide band of erythema extending right across the buttock in an obliquely downward direction. On the erythematous area were two patches of superficial vesication, and it was thought that this eruption might be an arsenical herpes; but one month later, after



Lupus exuberans with miliary lupus and recurrent cellulitis. Photograph showing left buttock and thigh with: A, the main infiltrated mass with ulcerated and crusted margin; B, miliary lesions; C, the margin of the exudative erythema which involved the whole area occupied by the larger infiltrations and by the miliary lesions.

the patient had taken $1\frac{1}{2}$ dr. of potassium iodide daily for three weeks, there was another sudden attack of erythema, which this time involved the whole of the buttock and upper part of the thigh and was separated from the normal skin by a sharply defined margin. The first attack was accompanied by sickness and headache, and the second by diarrhoea and vomiting and a slight rise of temperature (99.6° F.). It seemed probable that these two attacks of "erythema" were analogous to those

which occurred in connexion with leontiasis of the face and elephantiasis of the leg, when these two conditions were associated with lupus of those parts. The whole condition just described appeared to result from a rapid local invasion of the lymphatics by the tubercle bacillus, and the nodular infiltration, the scattered miliary nodules and the recurrent erythema were the reactions to this massive invasion.

The case recalled one type of miliary lupus described by Kaposi which should not be confused with the more general infection, multiple lupus, which had also been called miliary lupus.

DISCUSSION.

Dr. A. EDDOWES said he had had a similar case, in which the whole buttock on one side was affected. His patient was very broken down in health, and had lupus in other parts of the body also. The lupus process seemed to flourish better on the buttock than anywhere else. He divided the areas involved into three sections, and injected different salts of mercury into them, and all the areas did uniformly well. He suggested the local injection of mercury in this case, dressing externally with the yellow oxide of mercury ointment.

Dr. J. H. SEQUEIRA said it was difficult to treat these rapidly spreading cases of lupus, and it was a question whether it would not be worth while to try tuberculin; though he did not expect much benefit from it. In chronic cases he had discarded its use.

Dr. ADAMSON replied that his experience with tuberculin in lupus had been so bad that he had determined not to use it again. Although marked improvement had resulted in many cases for a time all had eventually gone to the bad.

Cultures of Favus.

By GEORGE PERNET, M.D.

THESE cultures from the two cases of favus (mother and child) brought before the Section in June last¹ were made by Dr. Elworthy, Pathologist to the West London Hospital, to whom Dr. Pernet was indebted for the trouble he had taken in the matter. The cultures were as follows: (1) On Sabouraud's maltose agar; (2) glycerine agar (+10 Eyre); and also on (3) glycerine broth (+10 Eyre). The last named was of special interest; it was white, and anemone-like.

¹ Pernet, *Brit. Journ. Derm.*, 1914, xxvi, pp. 324, 325; also *Proceedings*, 1914, vii, p. 262.

Cultures (*Trichophyton sulphureum*) from a Case of Tinea Circinata.

By GEORGE PERNET, M.D.

THESE cultures were also made by Dr. Elworthy. They were pale yellow on Sabouraud's maltose agar. The patient was a girl, aged 9, who attended the West London Hospital on July 17, 1914, for a large circinate ringworm on the left wrist. The circinate lesions tended to form imperfect circles within the outer ring, which measured about 3 in. in diameter. There was no history obtainable of contact with animals. The fungus demonstrated at the time was made up of long branching mycelium. Dr. Pernet had found in his notes a case of tinea cruris (from the Cape) in an adult man from which he had obtained, in 1899, a pale yellow culture of a trichophyton on Sabouraud's medium. On potato the culture was also pale yellow. In the present case the fungus appeared to be the *Trichophyton sulphureum*.

Case of Lichen Planus.

By E. G. GRAHAM LITTLE, M.D.

THE patient was a woman, aged about 40, in whom the eruption was somewhat peculiar, in that it consisted almost wholly of hypertrophic nodular lesions, the size of a threepenny-piece, thickly distributed over the dorsum of both feet and the lower third of the leg, much less thickly on the inner side of the knees and still more sparsely on the dorsum of the hands. There were in addition a very few, but quite typical flat small papules, characteristic of lichen planus, on the wrists and on the inner surface of the knees. There was no affection of mucous membranes. The condition had lasted for about six months, and there was intolerable itching. She had been under the treatment of Dr. Ronald Carter, who had been good enough to allow the exhibition of the patient.

Case of Lichen Spinulosus, with Atrophy ; (?) Tuberculide.

By HENRY MACCORMAC, M.B.

PATIENT, a male, aged 22. There was no family history of tuberculosis nor had the patient suffered from any previous illness. At the present time he had a urethritis of recent origin (gonococcal). The disease was stated to have begun on the left side of the forehead two years ago, as a "scar" attributed to rubbing from a hat-band. When he was first seen by the exhibitor some three weeks previously the forehead lesion consisted of a central atrophic area, slightly reddened, about the size of a shilling-piece, fringed with dark horny plugs which had since disappeared in consequence of the local application of salicylic acid. There was a similar but smaller lesion on the forehead close to the primary plaque, while on the back of the hairy scalp another was present. On other parts of the body, especially the left buttock, there were patches of follicular keratosis but without atrophy. As then seen the lesions on the forehead and scalp suggested lupus erythematosus. The buttock lesions were related to the scalp condition in their common possession of a follicular keratosis. Possibly the whole condition was a tuberculide.

DISCUSSION.

The PRESIDENT observed that the case was an important and delicate one. No doubt the cicatricial patches on the face bore a superficial, but, as he thought, a misleading resemblance to erythematosus lupus. Nor could he consider the scarred patch on the scalp, which still manifested spinous lesions, as an instance of lupus erythematosus. True lichen spinulosus—as understood in this country—was so frequently associated with lichen planus that he had come to consider it as a congener or variant of that disease; although he had looked for it in the patient exhibited without success, he would not be surprised if it subsequently developed. He thought the patches about the patient's hips were true lichen spinulosus and not lichenoid tuberculides which had become unusually spinous. On the other hand, he distinctly remembered one or two instances of typical lichen spinulosus on the scalp (although not on the face) which necrosed, leaving scars. Therefore, although he was one of the few British dermatologists who firmly adhered to the view that lupus erythematosus was in some sense a tuberculous disease, he could not consider the case shown as supporting that view.

Dr. MORRELLE (Brussels) remarked that he had seen and reported a similar case in Belgium.

Dr. ADAMSON agreed that the case was a very interesting one. When he first saw it he thought it was lupus erythematosus, though it was not typical of that disease, either in distribution or appearance. But when he saw the groups of lichen spinulosus-like lesions his view was that it was a tuberculide—lichen scrofulosorum. The case ought not to be used as an argument in favour of lupus erythematosus being a tuberculide, because it was not typical lupus erythematosus. He was of opinion that lupus erythematosus was not tuberculous. In the majority of published examples of association of lupus erythematosus with tuberculous lesions the supposed lupus erythematosus was not typical. He had brought a case before the Section of lupus erythematosus on the forehead and lupus vulgaris on the body. Afterwards it turned out that the whole condition was lupus vulgaris.¹

Dr. GALLOWAY said he agreed with the remarks of Dr. Adamson; that was the view of the diagnosis he would be inclined to take.

Dr. MACCORMAC, replying to the President, said he thought the great majority of cases of both lichen spinulosus and lupus erythematosus were of the nature of tuberculides. The case exhibited showed areas of atrophy closely resembling lupus erythematosus, together with definite patches of lichen spinulosus, and the two conditions were combined together in places. It might be regarded as a mixture of two varieties of tuberculide. If one inquired about the family of patients with lupus erythematosus there was almost invariably a history of tuberculosis.

Case of Keratoderma Blenorrhagica.

By CHARLES GIBBS, F.R.C.S.

L. R., AGED 34, was admitted to hospital on September 21, 1914. His history was as follows: About five months ago he had connexion with a strange woman. A month afterwards his right ankle became swollen and painful. The order in which other joints became involved was as follows: (1) Left ankle-joint, fifteen days after; (2) the right knee, hip, left knee, left shoulder, and right wrist afterwards. Two months after the connexion he noticed a discharge from his penis. During the last week of August he noticed a small pimple about the size of a split pea on the outer border of the dorsum of the right foot nearer the heel than the toes. It was hard, and was neither itchy nor

¹ *Proceedings*, 1913-14, vii, p. 21.

painful. He scratched it, but no fluid came out of it. Later, it went on enlarging, till by now it had become as large as a half-crown. This pimple was followed by a crop of eruptions. These were more marked on the soles of the feet than on any other part of the body, and more so on the balls of the toes than anywhere else on the sole. These eruptions were very close together and "appeared like mountain peaks on a relief map." They were also present in the clefts of the toes. The rest of the soles was covered with shining whitish scales. The area of eruption had a dark purplish colour. As regards the dorsa of the feet, there were ten discrete eruptions on the right dorsum. One of these was soft, and when punctured sebaceous matter was squeezed out of it. On the dorsum of the left foot there were eruptions on the great toe, fourth and fifth toes. Both the legs were covered with eruptions, more marked on both shins, but these eruptions were different in appearance to those on feet. The characters of the eruptions on feet were as follows: They were hard and nodular. These nodules, which were of dark brown colour, were made up of horny material which was concentrically arranged; each of these nodules was surrounded by a narrow zone of hyperæmia. The intervening area was covered with brown parchment-like thickening of the epidermis. The characters of the eruptions on the legs were those of discrete papules which faded away on pressure; some of these were covered with dry scales; they were much smaller in size than those on the feet; they also lacked the firmness and hardness so well marked in eruptions on feet. The eruptions on the groin and pubis partook of the nature of the eruption on legs, except that they were few and far between. There were three on the right hand: they were more or less similar to those on feet. Left hand and body were free.

Patient denied ever having suffered from syphilis. Wassermann's reaction was negative. He had slight granular pharyngitis. On bacteriological examination his urine was found to contain some gonococci and streptococci.

DISCUSSION.

Dr. GALLOWAY said that Mr. Gibbs had spoken to him about this unusual case before presenting the patient to the Section. It would be agreed by all that the clinical relationship existing between this peculiar type of cutaneous disease and certain debilitated sufferers from gonorrhœa and its consequences was sufficient to warrant the use of the name *keratoderma blenorrhagica*.

He would like to know if there was direct bacteriological evidence that the remarkable keratodermic lesions were produced by gonococci. Had gonococci been seen or cultivated from the cutaneous lesions?

The PRESIDENT said his experience of gonorrhœal keratodermia was very small. He thought it was unusual to have a lesion on the hand such as this patient had. He did not question the diagnosis, and saw no reason for suspecting any causation or complication by drugs, as had been suggested. The condition of the soles was identical with what he had seen in three cases, all of whom had profound toxæmia and gonorrhœal arthritis, and were altogether very ill. The reported results of treatment by vaccines were encouraging.

Dr. GRAHAM LITTLE said he had had under his observation three cases of this rare affection, and had contributed the third case to be recorded in this country in 1910. The appearances in one of these cases had been somewhat similar to the present case, especially in the warty aspect of the lesions; the distribution in one case had also been similar, the elbows, knees, and the dorsa of the hands and feet being affected. In this instance the diagnosis of "psoriasis" had been suggested by the practitioner in charge. All these cases had been treated by injections of gonococcal vaccine, and this therapy had been quite successful. In all the cases arthritis had been a notable feature, and it was curious that the urethral discharge was non-existent when the skin became affected.

Dermatological Section.

November 19, 1914.

Dr. J. J. PRINGLE, President of the Section, in the Chair.

Case of Lupus Pernio.

By P. S. ABRAHAM, M.D.

J. T., MALE, aged 22, diamond cutter. Had always been subject to chilblains. Duration of disease, seven or eight years. About seven or eight years ago he noticed thickening of the fingers with painful and stiff joints. The fingers had become very painful during the last few years, especially in cold or in very hot weather. A year ago the nose developed red spots at the tip, which were treated last winter by Dr. Poirier with the cautery. The raised patch on the hand appeared two months ago, since coming to England. His father had died of rapid phthisis at the age of 63. A sister was delicate, but other members of the family were healthy. He was born at Petrograd, of Jewish parentage, but had lived in Antwerp for the last ten years. His case seemed to have puzzled the Belgian physicians, but in the opinion of Dr. Dubois-Havenith the affection was tuberculous. The question might arise as to its being of the nature of Weir Mitchell's "erythromelalgia," which had been not infrequently observed in America in Jewish youths; or, perhaps, of the affection of the lower extremities described in this country by Dr. Parkes Weber.¹

Dr. Abraham added that, in his opinion, the lesions were of the character of "lupus pernio."

¹ Allbutt and Rolleston, "System of Medicine," 1911, ix, p. 73.

DISCUSSION.

The PRESIDENT (Dr. J. J. Pringle) regarded the case as a quite characteristic example of the condition first described by Sir Jonathan Hutchinson in this country as lupus pernio, a name afterwards adopted by Besnier and others on the Continent. It was typical in that the patient had very marked chilblain circulation with acro-asphyxia, and in the middle of the asphyxial areas there were patches and nodules of lupus. He asked Fellows present for their experience as to the ultimate course and duration of these cases, which he, personally, had been unable to follow out satisfactorily. Some of those he had seen had become sclerodactylic and gangrenous; but these conditions were referable more to the circulatory disturbance than to the tuberculous element.

Dr. ADAMSON agreed that the case was a typical example of lupus pernio. The disease was apparently very rare in this country. He had seen, on several occasions, a case which was under the care of Dr. Colcott Fox, in which the diagnosis had been originally made by Besnier, who had very carefully studied the disease. The condition of the fingers in that case was exactly as in this patient. The considerable enlargement of the distal part of the affected fingers and the dusky, purplish colour of the swelling were characteristic. The red-brown nodules of lupus were only seen on close inspection or on firm glass-pressure. Their presence was masked by the general infiltration. As to prognosis, the case referred to had been under observation for many years, and there had been little change beyond some slight diminution of some of the lesions under X-ray treatment and the appearance of fresh lesions in other parts. Another case under the care of Dr. Horton-Smith Hartley, in which nearly all the fingers and toes and the nose and ears were involved, had succumbed to acute pulmonary tuberculosis.

Dr. SEQUEIRA said that, in this type of case, he had found the greatest benefit follow static baths, taken to improve the circulation.

Case of a Peculiar Non-pigmented Soft Mole.

By J. M. H. MACLEOD, M.D.

MALE infant, aged 6 months. The mole was situated on the left side of the scalp just above the left ear. It was oblong in shape, measured $1\frac{1}{2}$ in. in length and $\frac{1}{2}$ in. in breadth, was raised about 1 mm. above the surface of the skin, hairless, non-pigmented, and presented a yellowish waxy appearance. Its peculiarity was that the surface was rugose, being split up by a series of transverse grooves, roughly parallel to each other, at intervals of about 2 mm. The nævus was observed at birth. There were no other congenital abnormalities.

DISCUSSION.

Dr. WHITFIELD said he had no doubt the lesion was a soft mole. What interested him in these cases was the question of alleged maternal impressions. There was no real evidence of such impression in this case, but it was interesting to notice how readily one could be elicited. The mother, when the child had been four and a half months *in utero*, thought a motor vehicle was going to run over her, and the appearance of the mole was curiously like the markings on a Prowodnik tyre.

Dr. SEQUEIRA said he had seen a mole of this type on the frontal area, which illustrated an interesting fact brought out by Dr. Warner that these congenital deficiencies were often multiple, as the child also had a coloboma on the same side.

Dr. GRAHAM LITTLE agreed with Dr. MacLeod that these cases were uncommon; he had never seen one quite like it.

Dr. ABRAHAM, discussing the subject of maternal impressions, related the case of a man in Dublin who had behaved badly to several women, one of whom badly scarred his face by throwing acid over it. At about the same time another woman gave birth to a child by him. This child had a strawberry mark on the same side of the face as the injury on the father's face; but, unfortunately for the "maternal impression" theory, the child was born three days before the vitriol was thrown!

**Case of Keratosis Follicularis Spinulosa (Lichen Spinulosus)
in a Girl, aged 8.**

By S. E. DORE, M.D.

Two years ago the mother noticed a roughening of the skin of the child's elbows immediately following an attack of pneumonia. The neck and body became affected about the same time, but there was no appreciable change in the condition until six weeks ago, when several fresh patches appeared. The eruption was seen in its most characteristic form on the back of the neck on each side of the middle line, where there were symmetrical patches consisting of closely aggregated follicular papules with projecting filiform spines. On the back of the elbows, and to a less extent on the knees, the follicles were dilated and centred by a horny plug, and all the follicles on the extensor surfaces of the forearms and legs were unduly prominent, causing nutmeg-grater roughening of the skin. There were numerous minute dome-shaped follicular papules, either single or in patches, scattered over the back and thighs, especially in the trochanteric regions, and a few on the abdomen; there was no definite whorl arrangement. These papules were for the most part skin-coloured, a few being reddened apparently from temporary local irritation. Itching was very slight. The child was in other respects healthy, and there was no evidence of tuberculosis; her Wassermann reaction was negative. The mother had had six children, of whom two had died; but none had suffered from a similar complaint, and there was no history of ichthyosis.

The exhibitor drew attention to the fact that the complaint had followed an exanthematic fever in at least two of the recorded cases, and also suggested that external irritation might be a causative factor as in the case of multiple comedo and folliculitis following the application of grease to the skin. He had recently seen a case of lichen spinulosus of a fortnight's duration in a young woman which was attributed to wearing furs round the neck.

DISCUSSION.

The PRESIDENT reminded members that at the last meeting Dr. MacCormac brought forward a case which was apt to give rise to confusion between two conditions which he (the President) considered to be completely

distinct. One was true lichen spinulosus, of which the present case was an example, and the other was a tuberculide which became spinous. He was inclined to think the French dermatologists did not recognise the condition presented by the patient, though they knew spinous tuberculides very well. He agreed with Dr. Dore that in this case there was no evidence of tuberculosis.

Dr. ADAMSON agreed with the diagnosis of lichen spinulosus. He was opposed to the view that lichen spinulosus was merely a form of lichen scrofulosorum. Dr. Colcott Fox had frequently called attention to the fact that there were several eruptions in which there might occur patches of grouped follicular spines—namely, lichen spinulosus, lichen scrofulosorum, the small follicular syphilide, and certain forms of seborrhœic dermatitis. And he had pointed out that these eruptions, though easily confused, were ætiologically distinct. In the speaker's opinion lichen spinulosus was not a tuberculide but an affection nearly related to lichen planus. Indeed, lichen spinulosus in an adult always indicated that the patient had had or was going to have lichen planus, if it were not already present. In children the same association had been noted, though lichen spinulosus occurred often in children, without planus lesions, possibly because lichen planus was so rare in childhood. Dr. MacLeod had lately shown a child with co-existent lichen spinulosus and lichen planus.¹

Dr. WHITFIELD said that he agreed with the diagnosis, and he also thought Dr. Dore was quite right in his idea that local irritation was a factor in the distribution of the spines. He thought there was a special susceptibility of the skin which caused it to react to slight irritants by an over-production of horny material. In this case the localisation of the spines on the neck was highly suggestive of the friction of the neck-band. The spines were more pronounced on the sides of the neck than on the back or the front, and this was the case with the ordinary pigmentation which was present on the necks of most men who wore stiff collars. In addition to the number of diseases which had already been enumerated by other speakers as productive of little spines he might add the so-called dry seborrhœic eczema. This was a disease strongly emphasised by Dr. Colcott Fox, and it was sometimes very difficult to distinguish seborrhœic eczema with spines from lichen scrofulosorum, as the papule formation and ring and disk grouping were present in both. The form of seborrhœic eczema with spines had only been seen by Dr. Whitfield in children. What it really came to was this—namely, that any chronic disease of the lanugo hair-follicle was liable to be associated with spine formation. He was also in provisional agreement with Dr. Adamson in the idea that lichen spinulosus was a phase of lichen planus. It was, of course, almost impossible to prove that this was so in every case, but it was certainly true of the majority of cases. As regards the question

¹ *Proceedings*, 1914, vii, p. 57.

of lichen spinulosus, pityriasis rubra pilaris and the acuminate papule of lichen planus he might say this: Dr. Graham Little had told them that microscopically the papule of lichen spinulosus resembled that of pityriasis rubra pilaris. He (Dr. Whitfield) had not had the opportunity of examining a papule of lichen spinulosus, but he had examined papules from the follicular lesions of pityriasis rubra pilaris, and from the follicular papule in one of Dr. Colcott Fox's cases of follicular lichen planus. To him they were quite indistinguishable; he could easily distinguish the plane lesions in these two diseases, since the plane lesion of pityriasis rubra pilaris resembled that of psoriasis, while that of lichen planus was of course a papillary infiltration; but the follicular lesions of the two diseases were indistinguishable. This being so it was probable, from what Dr. Little had said, that the papule of lichen spinulosus strongly resembled that of lichen plano-pilaris. As regards the comedo, he thought this was a different lesion, since it was more in the nature of a cork in the follicle, while in these other diseases it was rather a hyperkeratotic collar or funnel in the neck of the follicle, and he did not think the two lesions were produced in the same way.

Dr. GRAHAM LITTLE did not agree with the view that lichen spinulosus had any connexion with lichen planus. Histologically lichen spinulosus and lichen planus had very characteristic individual features which were not even alike. The nearest histological analogy to lichen spinulosus was pityriasis rubra pilaris, which he also regarded as totally distinct and unconnected with lichen planus.

Case of Psoriasis, Onychogryphosis, and Rheumatoid Arthritis.

By W. KNOWSLEY SIBLEY, M.D.

THE patient was a single woman, aged 24, a tailoress by occupation, who had always been rather delicate. Her father was stated to have died from consumption at the age of 60; her mother was living and well. There were seven other children in the family, who were all in quite good health. There was no history of rheumatism, nor of psoriasis in the family. The patient had a slight presystolic mitral murmur, and a rather hectic flush on the cheeks. She was very thin, and was suffering from a rather extensive gingivitis. The psoriasis first appeared eight years ago, and commenced in the neighbourhood of the larger joints—viz., the ankles, knees, wrist, and elbows. At the present time there was an extensive scaly eruption over both the trunk and limbs.

Three years ago the toe-nails became affected; the change commenced in the great toe-nails and shortly afterwards all the toe-nails became involved to varying degrees. The nails became very thick and hard, so that it was impossible for the patient to cut them, and they had therefore been allowed to grow uninterfered with ever since. At the present time the nail of the right great toe formed a horn some 4 in. in length, which had taken a complete curve round the nail of the second toe, which was itself considerably hypertrophied, the nail



Psoriasis and onychogryphosis.

had made almost a complete circle, and the free end pressed against the side of its own toe. The remaining nails varied from 1 in. to 2 in. in length, and were all more or less curved and folded one over the other.

The nails of the fingers were also considerably affected with psoriasis, especially those of the thumbs, which had become very much thickened at the free ends, and at the present time presented the more or less typical characters of the condition described as psoriasis of the nails.

The hypertrophied toe-nails were very hard and horny, the nail

substance had become opaque, the surface rough and irregular, and the colour varied from dirty yellowish straw to brown, while the finger-nails were distinctly blackish in appearance.

Three years ago the patient suffered from rheumatic pains in the legs and thighs; for the last twelve months the rheumatic condition had become much worse, especially in the hands, ankles, and neck. On the right hand there was considerable painful swelling of the middle joint of the thumb, and the proximal joints of the index, middle and ring fingers. On the left hand the little finger and the hypothenar eminence were affected. The joints which were attacked presented the typical cylindrical swellings of rheumatoid changes. In addition to the rheumatoid arthritis, the interest in the case consisted in the extreme hypertrophy and overgrowth—onychogryphosis of the toe-nails, which formed horns varying in length from 1 in. to 4 in., the longer ones were curved as shown in the photograph (p. 31). Radcliffe Crocker, in speaking of the ætiology of psoriasis, wrote, "Rheumatoid arthritis and the other arthropathies are also factors, and in such cases the nails are very frequently affected, and in the rheumatoid cases there is a great heaping up of the scales at points of pressure." This case certainly illustrated in a remarkable way the affection of the nails of the toes, and more recently also those of the fingers.

DISCUSSION.

The PRESIDENT said the case was an extremely remarkable one. He had had the fortune to see a few cases of toe-nails in a condition similar to this, which was called onychogryphosis, but he had never seen them in association with psoriasis. As Dr. Sibley said, the affection of the finger-nails was typically localised in the sub-ungual tissue, and he would call the condition of the patient's finger-nails typical psoriasis. He did not doubt that the toe-nail condition was a very exaggerated degree of the same condition as existed in the finger-nails, the disease having begun in the usual manner in the nail-bed and thence having invaded the nail substance proper. He was previously unaware of any relationship between onychogryphosis and psoriasis, and he would be glad to hear if anyone present had had any experience of cases similar to that exhibited.

Dr. PERNET said he did not remember having seen such marked onychogryphosis associated with psoriasis in so young a patient. He had had under observation several patients in whom psoriasis was associated with rheumatoid arthritis. In such, the psoriasis lesions were usually of the inflammatory or very congested type, and obstinate. Rest in bed, feeding up, and salicin he had found the best line of treatment.

Dr. WHITFIELD said that he had not seen onychogryphosis as the result of psoriasis before. He would point out that the loosening of the nail-plate from the bed was not produced in the same way as the onychogryphosis. The former was produced by a psoriasis papule occurring in the nail-bed, while the latter was produced by the affection of the matrix. The matrix could be affected either by the extension of the disease from the posterior nail-fold or by its extension from the tip of the finger along the nail-bed, but until the matrix was affected the loosened nail-plate would remain smooth, as was the case with the fingers of this patient, while the nails of the toes where the matrix also was affected were transversely ribbed and deformed. The case was one of rheumatoid arthritis of the small joint type, and apparently was associated with a toxæmia. This being so Dr. Whitfield would suggest, if Dr. Sibley had no particular treatment in view, that he should take the case in and administer creosote in the largest doses that the patient could tolerate. He had introduced this treatment some years ago, and had some success with it, but had not published any account because the percentage of successes was too small; but this was the type of case in which he had seen benefit most often. The successful cases had not been mere instances of the capricious disappearance of the eruption, as he had once or twice removed obstinate eruptions of more than seven years' duration. He had tried guaiacol carbonate as being less nasty, but had never had any success with it.

Dr. EDDOWES suggested that the toe-nails were most commonly damaged in the matrix by wearing short boots. The nail was thrust back with each step. He once saw nails as big as these; the patient was very poor, and wore any boots she could get, and generally they were too short for her. Her nails were supposed to have grown twenty-five years without being cut. They were, on each great toe, curled up like a ram's horns.

Mr. SAMUEL asked whether Dr. Sibley considered that the osteo-arthritis in this case was an ætiological factor in the production of the psoriasis. He understood the psoriasis in this patient had been in existence eight years, while the osteo-arthritis was of recent origin.

Dr. MIDELTON said he saw many cases of arthritis deformans, and for a long time there had been considered to be some association between that condition and psoriasis. His view was that there was no such association, at least to any great extent. The same toxin might cause both the joint and the skin condition, and measures directed to counteracting the toxin would clear both up. For many years he had advocated counter-irritation for these conditions; this treatment was first brought forward by Dr. Latham, of Cambridge.

Dr. SIBLEY replied that the only treatment for these very much hypertrophied nails was complete evulsion, though he did not know what the ultimate result would be. He was obliged for Dr. Whitfield's suggestion as

to creosote, and he might try it later. The patient had just commenced the intensive iodine treatment, and she said that already the pains were much less. There was undoubtedly an association between psoriasis and rheumatic conditions—not necessarily rheumatoid arthritis—and he was sure that this connexion existed in a large number of fairly healthy young people who had psoriasis.

Case of Lichen Plano-pilaris.

By J. H. SEQUEIRA, M.D.

THE patient, a single woman, aged 36, was sent to the London Hospital, by Dr. Newby Smith. She worked as a dressmaker, and beyond the usual infantile ailments had enjoyed good health. The family history was negative. In December, 1913, she stated that she felt unwell, and her hair began to fall. In July, 1914, her hands became affected, the backs first showing red spots and finally becoming scaly. A few spots also appeared on the abdomen. In September, 1914, the eruption came out widely, involving the whole of the body, limbs and face. In October the palms of the hands became rough and hard. There was no evidence of visceral disease. When shown at the meeting the patient had extensive lichen planus of the common type on the legs, forearms and trunk. The hands were also affected, the palms especially being keratotic and showing under the lens pin-head-sized depressions in the scaly surface. There were some curious pigmentary spots, the size of split peas, on the forehead, nose and chin; these were of a brown colour, definitely raised above the surface, and, apparently, of the same nature as the rest of the eruption. At the nape of the neck and on the shoulders there was an extensive eruption of closely set acuminate papules, presenting typical pointed horny plugs. The buccal mucosa showed characteristic lesions of lichen planus. The case was an unusually severe example of the type which had been described by the President as lichen plano-pilaris.

DISCUSSION.

The PRESIDENT considered the case the severest and most extensive example of the disease, which he had originally described as lichen plano-pilaris, he had ever seen. It was absolutely characteristic in the association of typical lichen planus with typical lichen pilaris lesions with horny plugs; and this association supported the views of himself and others as to the intimate, essential connexion between the two diseases. The case was, of course, different from the one he showed at the last meeting, which was one of pityriasis rubra pilaris, with a large proportion of plane lesions. In the present case the affection of the mouth was very characteristic, and would dispel any doubts as to the diagnosis.

Dr. GRAHAM LITTLE did not think that the accidental occurrence of lichen planus either synchronously with or following upon lichen spinulosus, which he had never seen happening in his own experience, and the recorded cases of which were excessively infrequent, warranted the assumption that the diseases were connected. The histology of pityriasis rubra pilaris was unlike the histology of lichen planus, but was very like the histology of lichen spinulosus, therefore the latter was unlike lichen planus. If it was contended that all acuminate lesions of lichen planus—and acuminate lesions were a well-accepted clinical form of lichen planus—were to be regarded as instances of lichen spinulosus, then there was no more to be said. But this was not contended. It was excessively difficult to differentiate follicular spinous papules, and he regarded it as probable that the very few instances in which lichen spinulosus had been noted as occurring in connexion with lichen planus were really instances of perhaps unusual acuminate forms of lichen planus simulating the lesions of lichen spinulosus.

The PRESIDENT said that the acuminate lichen of the Vienna school was now, by common consent, regarded as identical with the pityriasis rubra pilaris of Devergie, and, although a considerable number of acuminate papules were often present in typical lichen planus their histological characters were different from those of the acuminate lesion of Devergie's disease. But in cases of lichen spinulosus he believed one could frequently find concomitant lichen planus papules, or the patient subsequently had attacks of lichen planus. This case was a perfect example of the association.

Dr. ADAMSON said he regarded the case as an example of lichen spinulosus and lichen planus occurring in the same patient, and it illustrated his view that lichen planus and lichen spinulosus were the same or closely related conditions.

Dr. PERNET said that from the clinical point of view he considered that lichen planus and lichen spinulosus were separate diseases. He regarded the

fact of their coincidence in one patient as accidental. In his experience, lichen spinulosus was more frequently met with in young adults and children, but that the two conditions were often associated had not been his experience.

Dr. A. EDDOWES thought the President's name excellent for this complaint. Many of the lesions were found to be confined to the orifices of the sweat apparatus. In some chronic cases of lichen planus he had been fortunate enough to cut the section in such a way as to show the keratosis invading the hair-follicle; and it was not uncommon, even in rather acute cases of lichen planus on the limbs and body, to find little spines. This case was a slight development of what he had seen going on to a verrucose kind of lichen planus, so altered as to become, here and there, large granulomata, looking, when ulcerated, like granuloma fungoides. In that state it was scarcely recognisable as lichen planus at all; but on resolution the plane papules reappeared and cleared up all doubt.

Case of Rodent Ulcer.

By ALFRED EDDOWES, M.D.

MRS. R., aged 56, had been suffering from rodent ulcer for over ten years. Two years ago her blood had been examined and the suggestion was made that she should have a series of twelve subcutaneous injections (presumably salvarsan). Carbon dioxide snow was applied fifteen months ago. Suggestions as to treatment were invited from Fellows, as excision would be a formidable operation.

DISCUSSION.

Dr. MACLEOD considered that, owing to the position of the ulcer at the inner canthus of the eye, a radical excision was not practicable and believed that the best treatment for it was by radium. He had treated a number of cases of rodent ulcer with carbon dioxide snow but had not, so far, obtained a satisfactory result from that method, as recurrences had invariably taken place.

Dr. GRAHAM LITTLE had seen a series of cases of rodent ulcer of the eyelid, treated with carbon dioxide snow, both by himself and by his colleague, Mr. Leslie Paton, who had recently shown a number of excellent results of this treatment at the Harveian Society. He was personally satisfied, and so was Mr. Paton, that the method was a most useful one in the treatment of rodent ulcer in this position as well as elsewhere. His opinion of its general utility in rodent ulcer was founded on a long series of cases which had been kept under observation during the past four years, in which recurrences had been no more frequent than with any other method.

Dr. SIBLEY agreed that the snow would heal these cases up, but it required X-rays to cure them; otherwise in a few months they broke down again unless full doses of X-rays were applied for some half-a-dozen times at one-month intervals.

Dr. SEQUEIRA said he was not favourably impressed with the treatment of these cases with carbon dioxide snow. He had had a number of patients sent on to him after that treatment for the application of other measures, and he preferred to treat this type of rodent ulcer by radium. He had a case of the kind on the lower eyelid cured in 1903, and it had remained well ever since.

Dr. PERNET agreed there was frequently a recurrence of rodent ulcer after a time when carbon dioxide snow had been applied. Whatever treatment was employed, the case should be followed up, especially in old people, for recurrences.

The PRESIDENT said he mentioned to Dr. Eddowes before the meeting that the application of large doses of radium was much the most satisfactory method of procedure in rodent ulcers in the situation of the patient's lesion. As well as producing more permanent results, it was also handier to use.

Case of Papulo-necrotic Tuberculide.

By E. G. GRAHAM LITTLE, M.D.

THIS case was of the type described by Colcott Fox as *acne scrofulosa*. The patient was a woman, aged 35, who was now under treatment for pulmonary phthisis, and had had several operations for removal of tuberculous glands from the neck, where, however, there were still numerous large and hard glandular enlargements. She also gave a remarkable family history of tuberculous affections. The skin eruption had shown itself four years previously, and had persisted since then. At the present time there was a very widespread rash of typical acneiform necrotic papules distributed especially thickly on the buttocks, the legs, and the hands; less thickly on the arms and fore-arms, the abdomen, and to a slight degree on the face.

Case of Chronic Dermatitis of the Right Arm.

By E. G. GRAHAM LITTLE, M.D.

THE patient was a Belgian refugee boy, aged 16. The clinical appearances were strongly suggestive of tuberculosis, and this was possibly the correct diagnosis, but there were features rendering this conclusion at least doubtful in the exhibitor's opinion. The history, obtained through an interpreter, for the patient spoke no language except Flemish, was that at the age of 3 he sustained a burn of the arm, and in the site of this injury the first lésion developed as a chronic inflammatory condition, which spread slowly until the present area was involved. The aspect at present was that of a wavy, serpiginous outline, occupying the lower half of the forearm, of pus-infected, rather superficially indurated inflammatory skin, enclosing a smooth, ivory-white, supple scar. Outside the margin of the active inflammation there was an area of scar tissue of the same character, about an inch in width, which had been occupied by a similar inflammation. Above the elbow there was also a single scar of the size of a florin. No treatment had ever been applied other than a sedative ointment. Three diagnostic doses of old tuberculin, beginning with $\frac{1}{2000}$ mg. and finishing with $\frac{1}{500}$ mg., were given within five days, and there was no rise of temperature suggestive of tuberculosis. The apparently spontaneous involution of the centre and spread at the peripheral margin, the serpiginous outline, the definite inauguration of the disease with injury, and the rapid improvement of the inflammatory margin with surface-antiseptic treatment, had suggested to the exhibitor the possibility of a chronic non-tuberculous microbic infection of the general character of the cases described under the title "dermatitis repens" by Crocker, the exact nature of which had never been clearly apprehended by the exhibitor, but which had been included by dermatologists who had had opportunities of seeing Crocker's original cases under the general heading of "superficial ecthyma."

DISCUSSION.

The PRESIDENT, discussing the second case, said he thought it was a typical lupus modified by treatment, and in that view he did not think he stood alone. He could not see any resemblance in the case to the disease described by Radcliffe Crocker as "dermatitis repens," with which he was quite familiar.

Dr. DORE agreed with the President and others that this seemed to be a case of lupus vulgaris. The cases he had seen under the name dermatitis repens were not anything like that shown.

Case of Leprosy.

By A. WINKELRIED WILLIAMS, M.B.

THE case of leprosy exhibited at the end of last session was again shown to demonstrate the great improvement which was in part the result of a vaccine. Dr. Williams excised a nodule from the face and dried it to a brittle, horny mass in a sulphuric acid desiccator. This was ground up to a fine powder, from which Dr. Ihles made a vaccine and was able approximately to count the bacilli. The patient was given injections first of $2\frac{1}{2}$ million and later 5 million bacilli. The latter dose gave a specific reaction; no fever, but an eruption of patches of erythema which gradually disappeared, leaving slight pigmentation behind. A large ulcer on the knee that had resisted all previous treatment was reduced to two small scabbed lesions a week after the first dose, and completely healed after the second, and had remained sound ever since. All the profuse bacilli-laden discharge from the nose and throat had ceased, and careful swabbing of the nose and pharynx had failed to show any acid-fast bacilli. All nodules had flattened down, and most had become quite imperceptible to sight and touch. Sensation of pain was returning in the anæsthetic areas. The patient had at the same time been treated with large doses of oleum gynocardiæ by the mouth, boric nasal douching, followed by perchloride spraying and inunction of nodules with a white precipitate and ichthyol ointment.

Dr. Williams was anxious to elicit the opinion of the members of the Section as to whether it would be safe for this patient—an Army sergeant—to drill recruits in the present national emergency.

DISCUSSION.

Dr. GRAHAM LITTLE said Dr. Williams was to be warmly congratulated on the result in this case. A similar method was tried at St. Mary's Hospital in a case of leprosy two or three years ago. Sir Almroth Wright had the case in his wards for a long time. The patient received inoculations of emulsified tissue derived from a leprous nodule, in the way now described by Dr. Williams, and there was very manifest improvement in the patient in nine months.

Dr. G. PERNET considered, under the circumstances, that this man was not very contagious, so long as he did not sleep or live at close quarters with others. The nose condition should be carefully watched. He had never seen leprosy in this country spread from a leper to a non-leper, but the possibility of such an occurrence should be kept in view. Nodular cases were on a different plane, as to contagion, to the nerve leprosy type. He had seen all kinds of treatment do good at first in the nodular variety, but unfortunately disappointment was the usual event.

Dr. SEQUEIRA said the question asked by Dr. Williams was a difficult one to decide. He had to decide on the case of a nurse who was suffering from nerve leprosy. There had been no discharge from her nose. For the last three years she had been, with his approval, carrying out her duties.

The PRESIDENT was strongly of opinion that the patient ought not to be allowed into close association with recruits or any other of his fellow-men.

Dermatological Section.

December 17, 1914.

Dr. J. HERBERT STOWERS, Vice-President of the Section, in the Chair.

Case of Angiokeratoma.

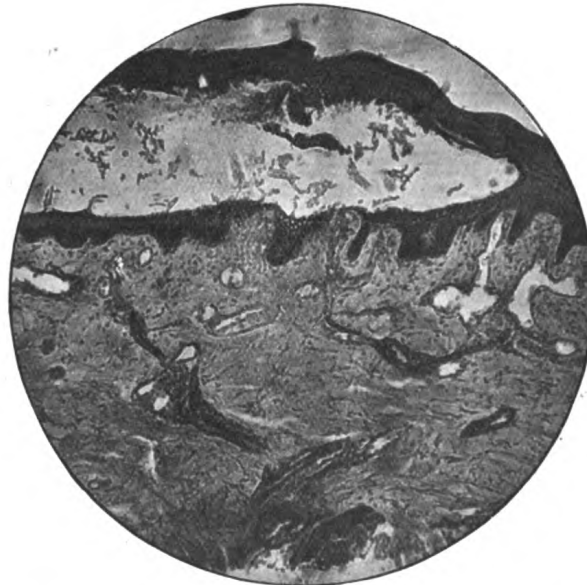
By W. KNOWSLEY SIBLEY, M.D.

THE patient was a girl, aged 17, engaged in housework, whose mother is stated to have died of cancer at the age of 46; her father was also dead, cause unknown. There were five brothers and sisters, all of whom were perfectly healthy.

The patient had had an eruption on the backs of the hands for seven years, getting gradually worse every winter and remaining more or less stationary through the summer months. Recently the lesions had become distinctly more marked and a few papules had appeared on the dorsum of some of the toes, and on the heels. The patient had a "chilblain circulation," but stated that she had never suffered from chilblains. The hands and fingers were enlarged and cyanosed. She had always perspired freely over the whole body, especially on the palms, which were often very damp. The patient stated that there was no pain or irritation, but the lesions easily bled if knocked. The eruption was present on the dorsum of all the fingers and both thumbs and over the knuckles, and consisted of small red, pale papules arranged more or less in groups, many of which had become flat and somewhat hard to the touch. White blisters, varying in size from a pin's head to a pea, were scattered about, and occurred especially on the sides of the hands, and of the index and little fingers. Indefinite lesions were scattered about the palms, chiefly of a dysidrotic nature. Small similar

lesions were present on the dorsa of the great toes and over the Achilles tendons.

A biopsy of one of the papules on the back of the hand gave the following histological condition: The primary pathological change seen in the section was a marked dilatation of all the blood-vessels, together with hypertrophy of the stratum corneum. There was a large space present in the papillary portion of the derma, which contained red blood corpuscles and a little fibrous tissue. There was also a dilatation of the lymph spaces, and a slight inflammatory condition of the upper portion of the dermis.



Showing cavernous space containing red and white blood cells and fibrous tissue ; dilated blood-vessels and hypertrophy of the corneous layer. ($\times 100$.)

The patient had been kept in bed with the hands covered up with cotton-wool, after being smeared over with calamine lotion, and a considerable improvement in the general condition had taken place. A pill containing 1 gr. of permanganate of potash taken three times a day, immediately after food, had diminished the general and also the ocular hyperidrosis.

DISCUSSION.

Dr. WHITFIELD said the section did not display the ordinary histological appearances of angiokeratoma; it was manifestly that of a mid-epidermic vesicle, whereas angiokeratoma was not a vesicle at any time. It appeared to be an instance of the condition on which the late Radcliffe Crocker wrote an article, in which he called it "a winter eruption."¹ The essence of it was cyanosis, a chilblain circulation, and deeply seated vesicles which often, when they burst, left superficial ulcers. He did not know that the pathology of the disease had been worked out, but many cases of it had been shown. The case exhibited did not show either warts or telangiectases; the lesions were not angiomatous, and they were not keratomata. The microscopical appearances of angiokeratoma were more like those of a cutaneous wart.

The CHAIRMAN (Dr. J. Herbert Stowers) asked whether the exhibitor considered that the photograph submitted included typical lesions of the disease in question and also whether he had seen the excellent coloured plates published together with a series of articles on "angiokeratoma" by Dr. Pringle, in the *British Journal of Dermatology*.² As the views of the case on the part of members generally differed from that of the exhibitor, he invited Dr. Sibley to show the patient again at a future meeting. It was certain that the dysidrosis presented by the patient was particularly noticeable.

Dr. ADAMSON also disagreed with Dr. Sibley's diagnosis; he saw no reason for calling it angiokeratoma, either clinically or histologically. There were none of the appearances characteristic of angiokeratoma of Mibelli and Pringle. He regarded the case as one of hyperidrosis with associated cheiropompholyx. The lesions present were vesicles. The cavity in the epidermis shown in the microscopical section was a vesicle, and not a dilated blood-vessel.

Mr. H. C. SAMUEL asked whether the patient's hyperidrosis was as bad in the summer as at present.

Dr. SIBLEY replied that the section was taken from the back of the knuckles; the lesion, which was a cavernous space, had its seat in the papillary layer and contained both fibrous tissue and red blood cells. The condition at present had more of the angiomatous than of the keratomatous element. The lesions had never broken down and ulcerated. There was a marked dilatation of lymph spaces and blood-vessels deeper down. He remembered Dr. Pringle's articles quite well.

¹ *Brit. Journ. Derm.*, 1900, xii, p. 42.

² *Brit. Journ. Derm.*, 1891, iii, pp. 237, 282, 309.

Case of Erythema Pernio ; (?) Lupus Erythematosus.

By W. KNOWSLEY SIBLEY, M.D.

THE patient was a girl, aged 16, a dressmaker by occupation. The father was living and well, the mother suffered from asthma, bronchitis and rheumatism. She had had scarlet fever, measles and whooping-cough, and occasionally complained of muscular rheumatism. She stated that she never suffered from chilblains, but her fingers and hands were always cold to the touch. The eruption had been present on the left hand each winter for the last four years. It was entirely absent during the summer months and generally reappeared towards the end of September of each year. In her previous attacks the disease had always been confined to the left hand ; but in the last five weeks it had also attacked the right hand slightly. The eruption was present on the dorsum of the fingers of the left hand and consisted of an erythematous condition with small papules, some of which were isolated and others grouped. Some of the lesions towards the finger-tips were superficially ulcerated and slight scarring was present. On the right hand the eruption was limited to smaller but similar lesions. The palms were unaffected. No lesions were present about the face, ears, or feet. Ecchymoses on various parts were apt to appear from time to time from no apparent cause.

DISCUSSION.

Dr. GRAHAM LITTLE regarded the case as a perfectly straightforward example of lupus erythematosus, and did not understand why it had been shown under other designation. Chilblain circulation was commonly present in such cases of lupus erythematosus, and its presence did not justify the classification with lupus pernio.

The CHAIRMAN considered that the diagnosis of the case as one of lupus erythematosus was undoubtedly correct.

Dr. DORE also regarded the case as a typical one of lupus erythematosus. In some of the text-books lupus pernio was classed with lupus erythematosus, but it was probably more closely allied to lupus vulgaris. In the case of the Belgian boy shown at the last meeting by Dr. Abraham, Dr. Pringle had pointed out that there were lupus nodules associated with the erythema.

Mr. McDONAGH considered the case to be a lupus erythematosus. There were one or two interesting points which occurred to him, and which he thought should be borne in mind in connexion with it. The patient was a girl, and the condition was becoming worse. Many of the disappearing lesions had left scars, there were telangiectases above the affected parts, and both hands were involved. He therefore thought the patient might easily get very much worse, develop acute generalised lupus erythematosus, and die of an acute pneumococcal or of a tubercular infection. Three of the cases of acute lupus erythematosus which he had seen commenced in this way, and all the patients were girls.

Mr. H. C. SAMUEL said there were hæmorrhages in the skin, and often in cases of chilblains there was a diminished coagulability of the blood. It would be interesting to know what the coagulation time was in the patient exhibited.

Dr. WHITFIELD pointed out that the coagulation time would not be of any value in diagnosis, because the coagulation time in lupus erythematosus was also slow.

Dr. SIBLEY replied that when he first saw the case he regarded it as a lupus erythematosus; but when he learned that it completely disappeared in the summer, and that she had little ulcerations at the finger-tips, he thought uncomplicated lupus erythematosus would not act in that way. The fact that it was asymmetrical was much against it being chilblains. The backs of the fingers seemed typical of erythematosus. He had not seen the patient in the summer, but considered it a mixed case.

Case for Diagnosis ; Persistent Nodular Erythema Multiforme.

By HENRY MACCORMAC, M.B.

THE patient, a woman, aged 64, stated that the condition began six months previously on the left foot as a "sore"; it had then spread to the hands, knees, elbows, &c., and now showed a well-marked symmetrical and bilateral distribution, especially tending to be present on points of pressure. The eruption, which was very nodular in its final stages, apparently began as a small flat lesion tending to enlarge, while clearing up in the centre, so that an area from a sixpence to a half-crown in size could be observed with a definitely raised margin of similar colour to that of normal skin. On the knees, elbows, knuckles, and on

the ear and nostril the lesions were of a purple tint, and here a superficial central necrosis occurred. There was a tendency to spontaneous resolution especially during rest in bed without any resulting scar. The family history was good; but one son was suffering from pulmonary tuberculosis. The Wassermann reaction was negative. Sections showed areas of cell infiltration with many polymorphonuclear leucocytes, but plasma cells and other round cells were also present. There were no giant cells. These appearances quite negated the original diagnosis of a tubercule.

Dr. MacCormac regarded it as a toxic eruption, and the microscopic sections supported that view.

DISCUSSION.

Dr. ADAMSON said that the case was, in his opinion, one of erythema multiforme of persistent type. Several similar cases had been shown at the Section meetings during the past two or three years. The first one he could recall was exhibited by Dr. Little¹ as a "case for diagnosis," and the speaker had then suggested the diagnosis of "erythema multiforme" with all its features exaggerated. Dr. Little's case was shown again some months later,² with the condition persisting unaltered. Dr. Gray had brought forward another case³ (in May, 1913) with the diagnosis "persistent erythematous eruption," and Dr. Sequeira a third case,⁴ also last year, as lichen verrucosus, which the speaker believed belong to the same class. In these three cases, as in that now shown by Dr. MacCormac, the lesions consisted of persistent raised, circular plaques or rings symmetrically distributed in the situations affected by the eruption of erythema multiforme—backs of hands and forearms and elbows and knees—and in Dr. Little's case on the cheeks.

Dr. GRAHAM LITTLE agreed with Dr. Adamson, who had mentioned his own similar case, shown at this Section, and also at the exhibition of cases at the recent International Congress in London, when the opinions of its nature had been very diverse. In that case circinate vesicating areas, such as were described by Dr. MacCormac, had been the characteristic lesion, and the distribution had been also curiously like that of the present case. Dr. Little deprecated its identification with granuloma annulare, as suggested by one of the members; in the latter disease—of which he had seen a large number of cases—he had never seen or read of vesication as being present at any time. The disease in granuloma annulare was much more deeply situated.

Dr. DOUGLAS HEATH said he saw Dr. Sequeira's case, referred to by Dr. Adamson, several years before it was shown at the Section; at that time

¹ *Erit. Journ. Derm.*, 1912, xxiv, p. 119.

² *Ibid.*, 1912, xxiv, p. 270.

³ *Ibid.*, 1913, xxv, p. 160.

⁴ *Ibid.*, 1913, xxv, p. 419.

it was in a more inflammatory state, more like erythema multiforme than when it was shown by Dr. Sequeira. On the knees, elbows, and knuckles the lesions were button-like and of dusky purple colour. This, and the absence of scaliness, suggested erythema multiforme; though, when Dr. Sequeira showed it under the diagnosis "(?) lichen verrucosus" the patches were covered with horny scales. Its type and symmetry were strongly in favour of it being a toxic erythema; and he thought those cases varied a good deal from time to time. In the case he saw, the nurse at the hospital said that at times the lesions were fairly flat, and at others elevated. This present case was somewhat circinate at its margins, just as Dr. Sequeira's case was.

Dr. GRAY expressed his agreement with Dr. Adamson; he had seen one or two similar cases, and the lesions nearly always occurred at the periphery of the limbs and on the knees and the backs of the elbows. There seemed to be different types running into one another. In the case shown by him at this Section the lesions came out very suddenly, and often there was hæmorrhage into them, and some blistering, followed by septic infection. In a case shown by Dr. Bunch at the International Congress, which the speaker regarded as being of the same nature, the lesions were not so acute as in his own. The type which Dr. Sequeira showed seemed to be still more chronic; there was no vesication, and horny thickening was very marked. He had had another case, in a child, in which the lesions were confined, more or less, to the backs of the fingers, which were very thickened and warty, and were associated with very well developed rheumatic nodules about the joints, especially the elbows, knees, and fingers. That case cleared up in an extraordinary manner under ordinary anti-rheumatic treatment. The condition in his other case had slowly disappeared after many recurrences. Dr. Bunch described the case which he showed at the International Congress as *granuloma annulare*, and he (the speaker) thought there was some connexion between the latter condition and this group of cases under discussion. He also thought that the cases described by Crocker under the name "*erythema elevatum diutinum*" belonged to the same group. This was true of the cases which had been described by continental observers under that name, but he could not say whether they were the same disease as Crocker originally described.

Dr. MACCORMAC replied that he considered that a superficial necrosis occurred in this case. At one time it had been diagnosed as *erythema elevatum diutinum*, and at another time it was thought to be *granuloma* of unknown nature. Dr. Pringle, who had watched the case for some time, had authorised him to say that he had been inclined to the idea that the disease was a multiform senile tuberculide, largely on the ground of the marked central necrosis which occurred; but the microscopical findings definitely excluded that diagnosis, which had been abandoned.

**Case shown as Multiple Rodent Ulcer or (?) Epithelioma
Adenoides Cysticum.**

By E. G. GRAHAM LITTLE, M.D.

DR. GRAHAM LITTLE showed a male patient, aged 41, with a large number of small tumours on the face, the diagnosis of which lay between "multiple rodent ulcer" and "epithelioma adenoides cysticum," with a leaning, perhaps, to the latter. The case was of very special interest, for it seemed to offer a combination of circumstances which favoured either alternative, and it in fact illustrated the impossibility in our present state of knowledge really to differentiate these two conditions, if, indeed, they were capable of differentiation.

The patient gave the following remarkable family history: His mother had had five or six similar swellings on her forehead which had commenced at the age of 30, and had not ulcerated. No other members of the mother's family had been affected, but her children seemed to show either numerous nævi or tumours, which might be supposed to be of the same type as in the present patient, who was the eldest son. The second son, aged 36, now in Canada, had a tumour, congenital and probably a nævus, as the patient said it was like the tumour present in his own son, which had been seen by the exhibitor, who regarded it as undoubtedly a nævus. This man had no children. The third son, aged 33, had a "nævus" on the forehead, also congenital. He had no children. The fourth son, aged 30, a seaman now with the North Sea Fleet, had a number of tumours "exactly like the present patient's," and situated on the face and forehead. These had made their appearance at the age of 20. He had no children. The patient, A. W., had four children, of whom the eldest, aged 11, had some small tumours which were regarded by his father as of the same character as his own. This boy had been examined by the exhibitor, and was found to have a cavernous nævus about $\frac{1}{2}$ in. in diameter on the chest, which had first shown itself at the age of 7, and a number of dead-white tumours the size of a small pinhead, which were probably ordinary milium, distributed sparsely on the eyelids and about the inner canthus of both eyes. It was interesting that milium had been noted in conjunction with some earlier cases of epithelioma adenoides cysticum.

The patient, A. W., had had no tumours until the age of 20, when

he first noticed the single wart-like lesion now to be seen on his upper lip. In the following twenty years a succession of tumours had made their appearance, chiefly in the neighbourhood of the upper and lower eyelids, and about the inner canthus of both eyes, on the temples, in front of and behind the auditory pinna; and there was a specially thick group of larger tumours at the junction of the forehead and nose. One of the largest tumours was situated on the left side of the forehead, and this was also the most deeply pigmented; it had been excised, and sections were shown which would be described later. There was a single warty and pigmented lesion of the same type on the chest. The appearance of the tumours varied somewhat, some being wart-like; some of a waxy translucence, with either a pink or dead white tint. Some, and especially the larger, had a network of dilated vessels running over the roof of the tumour. A remarkable feature of several of the lesions was the fact that they became pigmented *after* developing at first in the more usual wax-like way. In several cases the pigment was in the form of a granular deep-black deposit, much as if tattooed with gunpowder. The patient was positive that the pigmentation was secondary to the formation of tumours and not vice versa. Their increase in size was relatively rapid, a swelling as large as a green pea forming within twelve months: the average size was from $\frac{3}{4}$ in. to $\frac{1}{8}$ in., and some sixty discrete lesions in all could be counted, and new ones kept coming. Ulceration had never occurred in any of these.

Histologically, the evidence seemed, if anything, in favour of the diagnosis of rodent ulcer, but the exhibitor did not pretend to be able to distinguish the appearances of epithelioma adenoides cysticum from those of rodent ulcer, and did not think any hard-and-fast grounds of distinction existed. In a paper describing two cases, which were reported as cases of epithelioma adenoides cysticum, contributed to the *British Journal of Dermatology* in May, 1914,¹ the exhibitor had dwelt on the difficulties of establishing any means of differentiation. In a friendly criticism of these cases Dr. Adamson had expressed his opinion that both were examples of rodent ulcer. This present case was an even more difficult and puzzling one to classify. There seemed a certain degree of evidence for family inheritance, although the patient's opinion that his own case and his son's were the same disease had proved illusory, and threw some doubt on his accuracy in the other cases also. If a true observation, it was a factor in favour of making

¹ *Brit. Journ. Derm.*, 1914, xxvi, pp. 173-185.

the diagnosis of epithelioma adenoides cysticum. It was of interest to record the opinion of a general pathologist of rather special knowledge in malignant growths, Dr. Kettle, Assistant Pathologist to St. Mary's Hospital, who had had a long experience at the Cancer Hospital. This observer had seen sections from all three of Dr. Little's cases and his opinion had been that the present case and the second of the two cases reported in May were examples of rodent ulcer and that the first case was epithelioma adenoides cysticum. The development of pigment in the tumours subsequent to their formation was, as far as the exhibitor knew, unrecorded in rodent ulcer, but pigment seemed to have been not infrequently present in recorded cases of epithelioma adenoides cysticum. It was, of course, true that rodent ulcer frequently developed on the site of pigmented moles, and in that way rodent tumours might be pigmented, but the history in this case was totally different, in that the tumours had appeared on non-pigmented areas and had subsequently become pigmented. Pigmentation was therefore in favour of the identification of this case with epithelioma adenoides cysticum, as was also the multiplicity of tumours, their distribution and their early advent, the long period of tumour formation without ulceration, and, above all, the family history, if reliable. But it was interesting to note that the limited and characteristic distribution, and especially the curious straying of lesions, on the chest (which in the continental cases had been the site of election for the appearance of epithelioma adenoides cysticum), the multiplicity, and long immunity from ulceration of the vast majority of lesions, had also been features of the second case recorded in May, which was not entirely accepted as an example of epithelioma adenoides cysticum, under which name it had been described by the exhibitor. It seemed, therefore, rather desirable to revise the whole of our conceptions of the nature of this curious disease and its relation with rodent ulcer.

DISCUSSION.

Dr. ADAMSON quite agreed that this case should be called multiple rodent ulcer. His view¹ was that multiple rodent ulcer and benign cystic epithelioma (of Brooke) were essentially the same disease, but different clinical types; and it was useful to retain the two names as clinical terms. Pathologically and ætiologically they were alike. Both were basal cell epithelioma indistinguishable under the microscope, and both were congenital in the sense of the

¹ *Lancet*, 1908, ii, p. 1133, and 1914, i, p. 810.

Cohnheim embryonic cell-rest theory, and both affected the same areas on the body. The nodules might be described as abortive attempts to form pilo-sebaceous follicles. Embryonic cells destined to become pilo-sebaceous follicles had remained latent until aroused with the general awakening of these structures at puberty (or again later in life when there was a fresh tendency to hair-growth in certain parts); but at this time the dormant cells had lost their power of differentiation and retained only that of proliferation; so that lobulated masses of embryonic cells were formed, but no pilo-sebaceous structure. That the growths of later origin should break down and ulcerate could be readily explained by the lower vitality of their component cells awakened to activity at that period of life; and that would also explain the tendency of rodent ulcer to destroy the normal tissues as its growth advanced; for its cells were decadent cells which would naturally be harmful to the normal tissues among which they were growing. The difference between the benign basal-cell epithelioma and rodent ulcer—which was after all only one of degree, for some rodents exhibited no tendency to invade deeper tissues—was much less wide than the difference between rodent ulcer and true carcinoma. In regard to the distinctions between multiple rodent ulcer and benign cystic epithelioma which the writer had pointed out in 1908, these seemed now to be removed and were no longer an obstacle to the joining up of these two complaints. At a recent meeting of the Section the speaker had brought forward some members of a family of which three females and two males were affected with multiple benign cystic epithelioma,¹ these showing that the disease was not confined to females as was formerly believed. And here was Dr. Little's case of multiple rodent ulcer in a man who gave a family history of several other members of both sexes affected with rodent ulcer or benign tumours, thus demonstrating that multiple rodent ulcer might be a family disease.

Dr. WHITFIELD said he thought there was a more important difference than the mere fact of ulceration between rodent ulcer and benign cystic epithelioma. He believed he could distinguish between the two under the microscope. In the latter condition the growth was strictly limited, whereas in rodent ulcer it was ill defined. Rodent ulcer was not simply a mass of cells which developed at the age of 40 and owing to their degenerate character broke down and ulcerated; it really infiltrated into tissue, including bone, and went straight through it. It was not malignant in the sense of causing widespread metastasis in organs, but it possessed an enormous local malignancy. Even in early rodents one could generally see besides the mass of the tumour outlying branches, and by looking at the edge of the section one got an indication as to which of the two conditions named the case belonged to. Although Dr. Adamson was probably right genetically, in that both occurred as different types of congenital lesion, one of them was essentially a benign

¹ *Proceedings*, 1914, vii, p. 95.

condition and the other was a progressive malignant disease. He did not think the breaking down had anything to do with it; almost any tumour would break down. One did not often see rodent ulcer grow to the size of a hen's egg; but it would grow laterally to any degree, though not producing a greatly elevated tumour. The other kind of tumour was elevated and nearly spherical.

Dr. DORE said that, speaking clinically, he thought there was no doubt that benign epithelioma was potentially a rodent ulcer. He had had two cases under his care in a brother and sister, and in both patients one of the growths had enlarged and assumed the clinical and microscopical characters of a rodent ulcer. He thought the condition was parallel to that of a wart or mole which became malignant later in life.

Mr. McDONAGH thought that no difficulty need arise about these tumours, if their origin was considered. The epidermis primarily consisted of one layer of cells, and the cells resembled those which constituted later the basal-celled layer. As the embryo developed this one layer gave rise to several other layers, and later still some of these layers developed into special structures, such as hair-follicles, or sebaceous and sweat glands. He considered that a rodent ulcer arose from the most embryonic cells, and was more malignant than the other types, because the cells were more embryonic, but that the malignancy differed entirely from the malignancy of adult tissue. The former was not a true malignancy, but embryonic activity; the latter was true malignancy and due to the nuclei and nucleoli of the host's cells acting as parasites upon the host. If the cells of the tumour arose from cells which were not quite so embryonic, the case would be one of benign cystic epithelioma, to which type the case shown conformed. Tumours still less embryonic would be papillomata, tricho-epitheliomata, sebaceous adenomata, and syringomata, according to the tissue affected. As one could not distinguish microscopically the most embryonic type of cell from one a little less embryonic, therefore one could not diagnose in this way every case of rodent ulcer from every case of benign cystic epithelioma, but clinically they could be easily differentiated.

The CHAIRMAN said that the Section was much indebted to Dr. Graham Little for exhibiting so interesting a case, and inquired what plan of treatment he intended to adopt.

Dr. GRAHAM LITTLE replied that he proposed to keep the man under observation and to withhold any active measures as long as there were no symptoms of discomfort or ulceration.

Two Cases of Arrest of Growth of the Hair of the Scalp of Unexplained Causation.

By E. G. GRAHAM LITTLE, M.D.

Case I.—J. D., a young Welsh girl, aged 20, gave the following history: She had had "eczema" of the scalp at the age of 12, when her hair had been long enough to reach her shoulders. About three years ago she had had an attack of alopecia areata, from which she had apparently speedily recovered in the sense of getting a thick growth of hair, but in the last three years it had remained stationary at the length of about 1 in. The scalp was quite normally covered with hair, which had nothing peculiar about it except its persistent shortness. The pubic and axillary hair was normal. The patient was taken into St. Mary's Hospital with a view of investigating the condition of the ductless glands. A skiagram of the skull showed an apparently normal sella turcica. A skiagram of the chest seemed to show an enlarged thymus, an observation which was in accord with the somewhat undeveloped juvenile type of the patient. Palpation of the abdomen revealed the presence of a mass in the left epigastrium and hypochondrium, not definitely continuous with liver or spleen, and the connexions of which were obscure. It moved with respiration and was apparently deeper than the resonance of the intestine, so that it might be a pancreatic tumour. There was no tenderness on deep palpation of the abdominal wall. Menstruation began at the age of 17 and was normal. Her mental development was rather below the average, but not notably so. Her sugar tolerance had been tested by Dr. Castellain, Medical Registrar to the Hospital, to whom the exhibitor owed the excellent notes. She was able to deal with 8 oz. of sugar without showing it in the urine, so that she might be regarded as showing a somewhat high tolerance in this respect. Individual hairs had been examined microscopically, and there was no evidence of monilethrix or trichorrhexis. The nails were not in any way affected.

Case II.—The second case was a girl, R. A., aged 14, whose hair had never grown longer than its present length of about 1½ in. The mother had brought her to the Skin Department at the East London Hospital for Children when she was aged 3. The hair was then about

the same length as now ; no change had been noted in the eleven years intervening. The scalp was rather thinly covered with hair, which was lustreless and lifeless in aspect, but when examined microscopically showed no evidence of moniliform hair or trichorrhexis. Other children of the family were normal as regards the growth of hair. The child's mental development was unusually good, and there were no other symptoms of ill-health. The nails were not altered. She had commenced to menstruate early, three years ago, and after the first year menstruation had been normal. Further investigations would be undertaken in this case when she could be admitted to hospital.

DISCUSSION.

Dr. PERNET asked if the patients showed any thyroid changes ?

Dr. GRAHAM LITTLE replied that the thyroid gland seemed to be normal in both cases, and that there was no myxædematous aspect in the second.

Case of an Infective Granuloma of Unknown Origin.

By DUDLEY CORBETT, M.D.

THE patient was a Belgian youth, aged 23. There was nothing of note in the family history, and he had apparently never suffered from any serious illness. He came to England four years ago, and had worked partly as a waiter and partly in the employment of a butcher. The skin eruption from which he was now suffering appeared for the first time in October, 1910, lasted throughout that winter, but disappeared during the following summer. Since then it had regularly appeared every autumn and cleared up as summer approached. He was admitted to St. Thomas's Hospital on October 27. At first the eruption was taken for a syphilide, and although Wassermann's reaction was negative, he received two doses of neo-salvarsan, together with regular inunctions of mercury. This treatment, if anything, had aggravated the condition.

The eruption itself possessed certain unusual characters. Taking it as a whole, it was papulo-vesicular in type and of widespread distribution, involving the face, neck, trunk and limbs, including the palms and soles. There were no lesions on the scalp and the mucous membranes were spared.

Individually the lesions varied in character, and by watching certain areas of skin it seemed probable that this variation was due to their appearance in different stages of development. The stages occurred apparently in the following order:—

(1) A small papule, yellowish-pink in colour, the size of a pin's head.

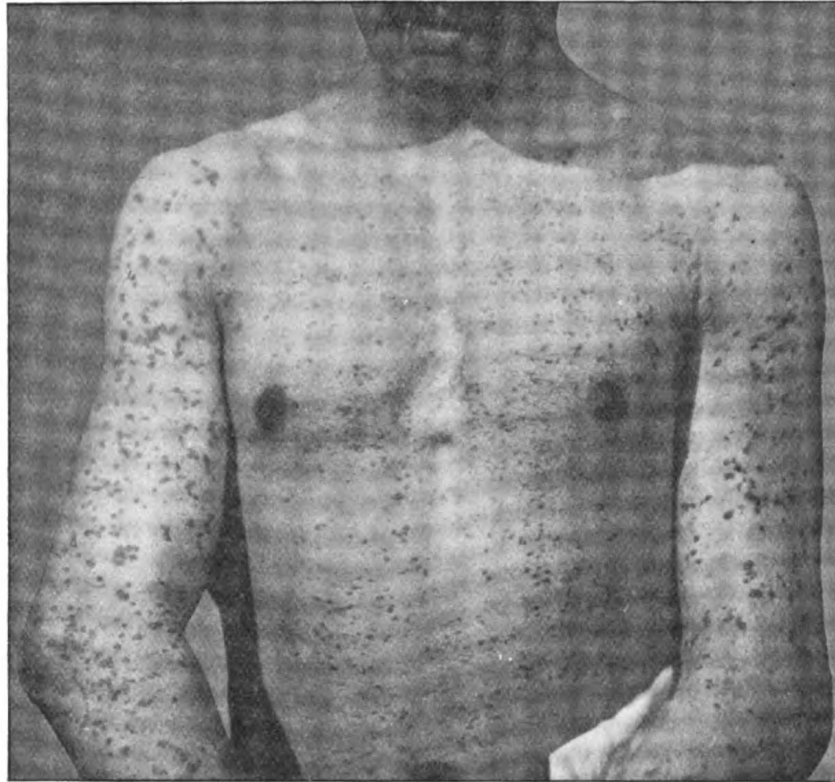


FIG. 1.

An infective granuloma of unknown origin; showing distribution on arms and trunk.

(2) A papulo-vesicle the size of a pea or smaller, pink at the base but whiter and more glistening at the apex. When pierced at this stage a serous fluid could be expressed. The apex was rounded and not depressed.

(3) A flatter papule, bluish-pink in colour, covered with varying degrees of scaliness.

(4) Small and round areas of skin stained faintly purple. This

staining was well shown in a strong light, such as that from an arc lamp.

Except where surface infection had occurred there was no inflammatory areola at the base, and in the finger there was only slight evidence of infiltration of the deeper layers.

He had had on admission a gonorrhœal discharge with some epididymitis, but this had cleared up under suitable treatment. The



FIG. 2.
Showing distribution on back.

urine was acid and contained neither albumin nor sugar. When anti-syphilitic treatment was discontinued he was put on arsenic, and was now taking 10 minims of liquor arsenicalis three times a day. With a view to improving his appearance X-ray treatment had been applied to his face, three one-third pastille doses having been given during the last month. The lesions had yielded rapidly to the X-rays, leaving behind small reddish-stained areas.

Dr. Stainer and he were agreed that the clinical features of this case did not correspond with any previously described condition. Dr. Whitfield then very kindly saw the case and agreed as to its unusual features. He was inclined to think that apart from the history it bore



FIG. 3.

Showing characters of individual lesions.

certain resemblances to an eruptive cystic adenoma, but that diagnosis was impossible without a biopsy.

Sections had been made and Dr. Whitfield had given the exhibitor his opinion upon one of them. It was, however, evident that further investigation was necessary before a diagnosis could be made.† For

many reasons it would appear to be an infective granuloma, but the epithelioid character of the cells composing it distinguished it as one of a very unusual type, and at one time led one to think that the new tissue might be epithelial in origin.

DISCUSSION.

Dr. WHITFIELD said that when he first saw the case he realised that to him it was a new disease, not merely an unusual phase of a familiar disease; and under the microscope its features were unfamiliar to him. He was not prepared to support very strongly his idea that these were epithelial cells, because he saw that there might be a fallacy. But he was not familiar with a granuloma which behaved in the same way. So that either he had to admit that these were epithelial lobes such as he had never seen before, or that they were arrangements in endothelial tissue in a granuloma which he had not seen hitherto. In some places one saw an extraordinary regularity in the inter-cellular connexions, while in other places it was very difficult to distinguish between the surface of the tumour and the true overlying epidermic tissue. The pathology seemed to reveal a new and undescribed disease.

Dr. ADAMSON said he thought the condition was a xanthoma diabeticorum; it was more like that, histologically and clinically, than anything else. It would be interesting to know whether the patient was a beer-drinker. Several cases of xanthoma had been recorded in beer-drinkers who had no glycosuria.

Dr. GRAHAM LITTLE said he was glad to hear Dr. Adamson's opinion, because before seeing the section that had been his own suggestion. He had seen xanthoma tumours as red as in this case; yellowness was not absolutely essential to the diagnosis of xanthoma.

Dr. PERNET elicited from the patient that he had only discontinued beer-drinking since the rash appeared. He agreed that some of the xanthoma rashes were not xanthomatous in colour. There was some points about the case in favour of its being xanthoma, though there was no sugar in the urine. Perhaps, too, the eruption had been modified by the various treatments employed. In some areas the individual lesions were extremely like lichen planus, a condition which manifested clinical variations.

Mr. McDONAGH said he regarded the case as one of infective granuloma. The lesions left scars, which was against the diagnosis of xanthoma diabeticorum, and the lesions on the penis reminded him of lichen nitidus. From an examination of the histological specimens he thought that the cells which had given rise to so much discussion were endothelial cells, and that the specimens resembled the endothelial type of tubercle. One of the sections resembled very closely the histology of lichen nitidus, and therefore he thought that the disease was probably tubercular, and that a protozoal or fungous cause would have to be excluded.

The CHAIRMAN drew attention to the remarkable configuration of the lesions. In view of its rarity and special interest he invited the exhibitor to submit it to the standing Pathological Committee for further investigation and report.

Dr. CORBETT replied that he was very willing to submit it to the Pathological Committee, but he wished first of all to make further sections and to stain some for Altmann's granules.

Case for Diagnosis ; (?) Xantho-erythrodermia Perstans.

By S. E. DORE, M.D.

THE patient was a man, aged 35, who presented an acute erythematous macular eruption on the trunk of ten days' duration, with many of the characters of pityriasis rosea but with a peculiar yellow tint. On the front of each shin there was also a smooth rectangular patch of chronic dermatitis of a deep yellow colour which had been present for a year, and on the scalp there were several patches of alopecia areata of about the same duration. In view of the fact that the eruption on the trunk was similar in colour to that of the patches on the shins it was thought that the two conditions might be part of the same disease and a tentative diagnosis of xantho-erythrodermia perstans was made.

DISCUSSION.

Dr. PERNET did not consider that the rash on the body in this case corresponded to the diagnosis of xantho-erythrodermia perstans. The duration of the condition was against it. He referred to a case of xantho-erythrodermia perstans in a young adult he had brought before the Section.¹

Dr. GRAHAM LITTLE did not think the colour was against the diagnosis of pityriasis rosea; a number of cases of the disease had an even darker tint. He had shown a case in which the lesions were almost walnut colour and gradations from that shade to pink and yellow were reported. He regarded the lesions on the abdomen as pityriasis rosea, and as having no connexion with those on the leg and head.

The CHAIRMAN remarked that his opinion coincided with that expressed by Dr. Little. He did not think complete reliance could be placed on shades of colour in order to establish the diagnosis of pityriasis rosea. It was particularly difficult to estimate them by artificial light.

¹ *Proceedings*, 1912, v, p. 106.

**Case of Alopecia Areata of the Scalp and Left Eyelids in
a Boy, aged 11.**

By S. E. DORE, M.D.

BOTH eyelids on the left side were completely devoid of hair and there were several patches of alopecia of the scalp. The right eyelids and eyebrow and the left eyebrow were unaffected. The boy had had a similar attack affecting the scalp and left eye only, about a year ago. Recovery ensued, but the hair had fallen again from the same parts during the past two months. Dr. Whitfield had published a small series of cases of alopecia areata of the scalp associated with some error of refraction, but in the present case the vision had been carefully tested and was found to be normal.

DISCUSSION.

The CHAIRMAN asked whether Dr. Dore had seen any case in which complete loss of eye-lashes followed the presence of pediculi apart from treatment. He had seen an instance of this in a young child. The pediculi were carefully removed after the use of a mild antiseptic fomentation to soften the crusts. Subsequently, the lashes were completely shed on both sides of the face. There was no alopecia elsewhere. Loss of eye-lashes on one side associated with alopecia was very rarely met with.

Mr. SAMUEL asked if there was any history of local trauma to the affected parts.

Dr. DORE replied that he had not seen alopecia of the eye-lashes following pediculosis; but he had pointed out that pediculosis of the scalp not uncommonly preceded alopecia areata, even in adults. There was no history of trauma.

**Case of Lichen Planus Hypertrophicus, with Excoriations, in
a Woman, aged 56.**

By S. E. DORE, M.D.

THE eruption began six years ago, but had been worse during the past three years. It was chiefly situated on the hips and thighs, with scattered lesions on the back, shoulders and arms, and consisted of raised violaceous plaques, irregular in shape and size,

many of which were deeply excoriated on the surface. Some of the patches had disappeared, leaving atrophic scars. The mucous membrane of the mouth was not affected. The patient complained of constant itching. She had had her ovaries removed fifteen years ago and it was possible that there might be an additional neurotic element in the case. The exhibitor thought that excoriations were rare in this disease and that spontaneous disappearance of the lesions was uncommon.

DISCUSSION.

Dr. GRAHAM LITTLE asked whether the excoriations preceded the thickening. Was it lichenification of traumatic lesions? Could artefact causation, for example, be entirely excluded.

The CHAIRMAN confirmed the diagnosis expressed by the exhibitor and regarded the case as one in which the hypertrophied masses were secondary to the papules of lichen planus, the special characteristics of which were so well known. In his experience the itching was always much less severe in the hypertrophic stage than in an ordinary development of lichen planus. He had seen instances in which these masses had disappeared spontaneously, leaving macules corresponding in character with those now seen on the patient's body, which at first sight suggested superficial scarring but which eventually cleared away. He considered that the habit of scratching was calculated to keep up the tendency to papule formation and certainly to add to the secondary hypertrophy when it existed. Prolonged baths and X-ray treatment were likely to be of much benefit to the patient.

Dr. DOUGLAS HEATH said he did not concur in the diagnosis of lichen planus. If it were lichen planus he thought one should find the original lichen planus papule or patch. He suggested it might be a severe prurigo, and that the severe itching caused the patient to tear herself. Most of the lesions seemed to have been aggravated by interference on her part.

Dr. GRAY said the Kromayer lamp had a good effect on these extensive cases, starting with five-minute exposures at 25 cm. distance, once a week or so, the dosage depending on the amount of reaction. Many of these conditions cleared up when the itching was stopped.

Dr. ADAMSON said he had always found hypertrophic lichen planus was very difficult to cure. In his experience X-rays had no curative effect on the disease.

Dr. MACCORMAC said that after lumbar puncture some cases cleared up marvellously; even in twenty-four hours they might begin to do so.

62 Abraham: *Case of Lupus Erythematosus of Fingers*

It certainly seemed to relieve the itching; and a good many of the lesions of lichen planus were the result of scratching. He had employed lumbar puncture successfully in various pruriginous conditions.

Dr. DORE, in reply, said he had not been able to make out definite lichen planus papules in the case. The hypertrophic variety of lichen planus did not usually yield readily to X-rays, but he had treated two or three cases with success.

Case of Lupus Erythematosus of the Fingers, with Lupus Pernio on the Nose.

By P. S. ABRAHAM, M.D.

THE patient was a female, aged 50, who had never been very strong, married, with two children, the youngest, aged 17, being healthy. She had had a miscarriage nine years ago. There was a history of abscess in the ear thirty years ago, and of abscess in the neck seventeen years ago. No history of tubercle in the family. The exceptionally extensive lesions on the hands and fingers first appeared on one knuckle in September, 1913, and on the ears and nose last March. The affection on the hands and fingers gave rise to much irritation at all times, and there was also irritation in the toes where she used to have chilblains. The patient's pulse was rapid and her circulation feeble. The lesions on the hands and fingers had some resemblance to hypertrophic lichen planus, but the typical condition in the ears was sufficient to confirm the diagnosis of "lupus erythematosus."

DISCUSSION.

Dr. DORE said he agreed with Dr. Abraham's diagnosis although the patches on the hands simulated lichen planus. He thought, however, that the patch on the nose was also characteristic lupus erythematosus and not lupus pernio.

The CHAIRMAN entirely agreed with the observations of Dr. Dore, who exhibited this patient for Dr. Abraham.

Mr. H. C. SAMUEL said the case was more like the scaly type of erythematosus lupus generally seen on the scalp than that usually met with on the hands.

Dermatological Section.

January 21, 1915.

Dr. J. J. PRINGLE, President of the Section, in the Chair.

Pathological Committee's Report on Dr. Sibley's Case.

THE HON. SECRETARY (Dr. Dore) read an abstract of this Report, and the President intimated that the full report was available for any member who wished to peruse it.

Report of Pathological Committee on the Cases presented by Dr. Sibley and Dr. Sequeira.

DR. SIBLEY'S CASE OF LYMPHADENOMA WITH GLANDULAR AND CUTANEOUS LESIONS.¹

A MEETING was held on October 2, 1914, Dr. James Galloway in the chair. Dr. Sibley's patient was present and was examined.

The account of the patient's case as published in the *Proceedings* was read, and microscopical preparations showing the skin tumours in his case were examined. It was felt to be desirable to obtain further information respecting this case, and Dr. Sibley arranged that one of the lymphatic glands in the axilla should be excised for microscopical examination, and that a further examination of the patient's blood should be made. Dr. Whitfield and Mr. McDonagh were asked to examine the microscopic specimens of the skin already prepared and the new material to be obtained from Dr. Sibley, and to report in due course to the Committee.

A second meeting was held on December 3, and careful reports were read by Dr. Whitfield and Mr. McDonagh on the microscopic material submitted to them for examination.

¹ Exhibited at meeting of July 16, 1914 (*Proceedings*, 1914, vii, pp. 276-281); and again at meeting of October 15 (*Proceedings*, 1914-15, viii, p. 2).

Dr. Whitfield's report discussed critically the microscopic appearances, and was based chiefly upon the structure of the lymphatic gland which had been excised, and from which microscopic preparations had been made by Mr. McDonagh. The conclusion of his report is to the effect that the whole picture strongly resembles that of the lymphatic gland in lymphadenoma, as described and figured by Dr. Andrewes. The presence or absence of eosinophile cells in the infiltration could not be decided, as the material had not been stained for the purpose of demonstrating these structures. Dr. Whitfield concluded that the case of disease under discussion was one of lymphadenoma with miliary growths in the skin.

Mr. McDonagh's report also discussed critically the histological appearances, both of the skin and especially of the lymphatic gland which had been examined. He compared the sections of both the skin and the lymphatic gland with fig. 11 of his recent paper in the *British Journal of Dermatology* on "The Rôle played by the Lymphocyte." He concluded that "the endothelial cell is the cell attacked; consequently there is a great multiplication of them, and, owing to their great tendency to increase as shown by being multinucleated, they are unable to generate lymphocytes. The few lymphocytes formed will also be degenerated; hence they fail in their characteristic lipid-globulin envelope, and consist of irregular masses of nuclein." Mr. McDonagh concluded, from the histological appearances, that the condition was one of leukæmic cutaneous lymphocytoma of the endothelial cell type, and that the prognosis of the case would be bad.

The report of the blood examination supplied by Dr. Sibley was then discussed. As it was considered advisable that an independent examination of the blood should be made, Dr. Galloway arranged that the patient should be sent to Charing Cross Hospital and that the blood should be examined by Dr. Topley, Clinical Pathologist to Charing Cross Hospital. Dr. Topley's report is now submitted:—

"December 31, 1914: Red blood cells, 4,700,000 per c.mm.; hæmoglobin, 62 per cent.; colour index, 0·66; leucocytes, 28,140 per c.mm.; polymorphonuclears, 35·2 per cent.; small lymphocytes, 15·4 per cent.; large lymphocytes, 6·0 per cent.; large hyalines, 3·6 per cent.; eosinophiles, 39·6 per cent.; basophiles, 0·2 per cent. The stained red cells show nothing abnormal."

Dr. Galloway's comment on the new blood count is as follows: There is distinct leucocytosis, but not sufficient in amount to make the diagnosis of leukæmia, nor is the character of the leucocytes suggestive of this

disease. The blood, however, shows a very remarkable number of eosinophile (oxyphile) leucocytes. The blood slides show a remarkable picture of eosinophilia. The basophiles (mast cells) are almost absent. The eosinophilia may very well be associated with the marked chronic inflammatory skin change present in this patient, and may fall into the same category as the eosinophilia present in other forms of chronic dermatitis, such as in certain pemphigoid conditions. There is clearly a marked leucocytosis, but it is possible that the chronic dermatitis may be sufficient to produce this condition.

After a further discussion at a meeting held on January 11 the following statement of the conclusions arrived at by the Committee was agreed upon: The evidence submitted, both from the clinical and from the histological points of view, seems to be in favour of the diagnosis of lymphadenoma with glandular and cutaneous lesions. It is agreed that the diagnosis of lymphadenoma must be made with the full recognition of the obscure origin of this affection and also of the insidious nature of the onset of leukæmia of the "lymphatic" type.

Dr. Sequeira's patient died soon after the Committee was appointed, and the problems presented by his case are at present being investigated in the pathological laboratory of the London Hospital. The Committee, therefore, is unable at present to fulfil the instructions given by the Dermatological Section, Royal Society of Medicine.

Dr. Whitfield's and Mr. McDonagh's reports are appended.

REPORT ON DR. SIBLEY'S CASE, by ARTHUR WHITFIELD, M.D.

(I) *The Skin.*

(a) *Epithelium.*—This is merely stretched out and somewhat thinned over the new tissue below. The papillæ are diminished in height or completely flattened out over the centre of the infiltration, while they are elongated and narrowed at the edges. These are the alterations that are usually associated with new tissue formation deep in the corium, as contrasted with that beginning in the papillary layer (e.g., in mycosis fungoides), in which the undulating line caused by the alternating ridges and papillæ is exaggerated over the centre of the infiltration.

(b) *The Corium.*—The corium is the seat of a massive but somewhat diffuse infiltration. The main seats of this are the middle and lower parts of the corium, and it would appear that the papillary body is only secondarily invaded, as the appearance of the infiltration in the papillary body closely resembles that of the middle of the corium at the lateral

edges of the infiltration. The fibrous tissue in the centre of the infiltration is finely reticulated, but whether this is due to newly formed fibrous tissue or to the mere rarefaction of the old it is difficult to say. On the whole, from the arrangement of the fibroblasts and that of the centre of the infiltration I am of opinion that at any rate some of it is newly formed.

None of the sections was stained to demonstrate the elastic tissue; the whole of the infiltrated area, especially towards the periphery, is strikingly œdematous and very widely dilated vessels are numerous. It is again difficult to state definitely whether these are blood-vessels or lymphatics, as they have lost their contents, but from a study of their walls and the tissue immediately surrounding them I believe them to be lymphatics. All the vessels are surrounded by a wide zone of well-formed cells which belong to the ordinary "clasping" type. The main infiltration varies greatly in different sections. I believe this to be due to the fact that the growth has a centre, or rather several centres and a thick surrounding zone. In most of Dr. Sibley's sections the knife (if I am right) has passed through the outer zone in a tangential direction, giving a picture of only a diffuse, rather dense lymphoid infiltration. In one of Mr. McDonagh's sections the knife has evidently passed more nearly through the centre of the infiltration, giving a different and more informing picture. Taking the latter as giving a more accurate representation of the whole anatomy of the formation, one finds the following: In the centre the growth has a tendency to form follicles, but these are not developed very completely. At all events the infiltration is grouped into ovoid masses with the reticular tissue arranged in concentric layers. The cells in the centre of these rudimentary follicles are large and their staining less intense than that of the cells outside.

The cells of the infiltration consist of:—

(1) Large, pale-staining endothelioid cells, usually with one but occasionally with more than one nucleus; the nucleus is vesicular and poor in chromatin, the nucleolus is obvious but is stained bluish instead of red as is usually the case. This I believe to be due to lack of differentiation in the staining, since it is a very rare abnormality, and I notice that the same accident has happened in many instances in the nucleoli of the epithelium, which appears to be otherwise normal. There is a fair number of multinucleated large cells present, such as one commonly finds in granulation tissue, that is, they are more or less oblong cells with processes running off into the surrounding tissue. The nuclei are grouped into a clump in the centre and not in rings or horseshoes as

in the tubercular and foreign body giant cells. I take these to be syncytia formed of the previously described endothelioid cells.

(2) Young fibroblasts, long in shape, evidently active, and apparently forming fresh reticular tissue.

(3) Cells with indeterminate nuclei and spongy protoplasm stained a bright cherry-red. These are what are usually described as "lymphoblasts" when met with in lymphatic glands, and they are more or less closely related to plasma cells.

(4) Small lymphoid cells with deeply staining nucleus and little or no protoplasm.

(5) Mast cells.

Cells 1, 2, 4, are numerous, cell 3 is scanty, cell 5 rather abundant. I saw no plasma cells, unless one is inclined to class cell 3 under this heading, which I am not. Mitosis is apparently normal in type and fairly abundant; it gives the impression that the growth is firmly developed. Unless one can apply the term "degeneration" to the cells which show a pale staining in the centre of the growth, there is none evident. Personally, I think it would be erroneous to consider these pale-stained areas degenerate; I regard it rather as a sign of activity, since it exactly resembles what one sees in the centre of the lymph follicles of the normal lymphatic gland.

(II) The Gland.

It is unfortunate that the sections do not take in the periphery of the gland and the capsule. One is therefore unable to state whether there is any transgression of the capsule, and further, it is more difficult to study the broad anatomy. However, the structure seen is remarkable, and the tissue is scarcely recognisable as true lymphatic gland. There is a total disappearance of all the follicles, a marked diminution in the numbers of the lymphocytes, and a marked increase of the large endothelial cells. The sections were not stained to demonstrate either the reticulum or the presence or absence of eosinophile cells. The reticulum I should say was increased in amount.

The whole picture strongly resembles that of the lymphatic gland in lymphadenoma as described and figured by Dr. Andrewes,¹ minus, of course, the eosinophile cells which may or may not be present. I should say, therefore, that the disease is lymphadenoma with miliary growths in the skin.

¹ Bowlby and Andrewes, "Surgical Pathology and Morbid Anatomy," 6th ed., 1913, p. 268.

HISTOLOGY OF DR. KNOWSLEY SIBLEY'S CASE, BY J. E. R.
McDONAGH, F.R.C.S.

Epithelium.—The epithelium is only secondarily affected, in that it is flattened out, and its layers reduced, over that part of the corium in which the main mass of the cellular infiltration is situated. The cellular infiltration reaches up as far as the basal layer of the epidermis, and there is not that space between the two which is said to be characteristic of leukæmia cutis.

Corium.—Although there are main masses of cellular infiltration, which are more or less circumscribed and do not invade the subcutaneous tissue, the whole of the corium is studded with a cellular infiltration to a greater or to a less degree. In the periphery of the main masses, what at once strikes the eye is the marked dilatation of the capillaries and lymphatics, the perivascular arrangement of the infiltration, and the great number of mast cells. In some sections there are numerous eosinophile cells. If the vessels and lymphatics are more closely studied one notices that there is a marked endothelial proliferation, which in some places is sufficient to block the lumen. Some of the endothelial cells have extended peripherally where the main increase of cells are connective tissue cells and lymphocytes. There are no plasma cells. The main masses are less cellular owing to the fact that several of the cells have degenerated, and that the cell playing the most part in the infiltration is the large, badly staining endothelial cell. In the main masses there are not many lymphocytes, and no plasma cells or mast cells, but here and there, where a few endothelial cells have coalesced, typical giant cells are to be seen. In the immediate periphery the number of lymphocytes are increased; there are a few mast cells, no plasma cells, but a very marked increase of connective tissue cells. Especially noticeable about the cellular infiltration, as a whole, is the poor affinity the endothelial cells and lymphocytes show for pyronin and methyl green, especially for the former. This means not only that the protoplasm of the cells is very poor in lipoid-globulin and therefore markedly degenerate, but that the nucleic acid content is diminished, which renders the cell more degenerate still.

Examining the cells individually, the following characters are to be noticed:—

Endothelial Cells.—The protoplasm is swollen, stains faintly, and is sometimes granular. In a few of the cells embryo lymphocytes are

to be found, but they are very few in number and not pyroninophile. On the other hand, they show a great affinity for methyl green, with which they stain very deeply. Instead of the embryo lymphocytes being well formed, their nuclei are more often to be seen broken up, so that the protoplasm of the endothelial cell appears to be crowded with small masses, which stain almost black with methyl green. The nuclei of the endothelial cells are swollen; many cells have one or more nuclei, and the nuclei may contain one or more nucleoli. The nucleoli are remarkable in being so faintly pyroninophile.

Lymphocytes.—Those already formed stain faintly with methyl green and are degenerated. Here and there is to be seen a feeble attempt to form plasma cells, the protoplasm of which is irregular and only stains faintly with pyronin. A few embryo lymphocytes are to be found, but it is an exception for them to contain a lipoid-globulin and pyroninophile protoplasm. Most of the embryo leucocytes are merely masses of nuclein.

Lymphatic Gland from Axilla.—The gland is a very small one, but practically the whole of its structure is altered. There is very little cortex, as most of the gland consists of abnormal follicular tissue. The number of lymphocytes are diminished, while the endothelial cells are very much increased. In the gland section there are a few plasma cells and more normal embryo lymphocytes. The endothelial cells resemble those already described in the skin section.

The sections of both the skin and the lymphatic gland resemble fig. 11 of my recent paper in the *British Journal of Dermatology* on the rôle played by a lymphocyte, &c., but with certain differences.

The endothelial cell is the cell attacked; consequently, there is a great multiplication of them, and owing to their great tendency to increase, as shown by being multinucleated, they are unable to generate lymphocytes. The few lymphocytes formed will also be degenerated; hence they fail to exhibit their characteristic lipoid-globulin envelope, and consist of irregular masses of nuclein.

From the histological appearances I should imagine that the prognosis of the disease would be bad. In my opinion the condition is one of aleukæmic cutaneous lymphocytoma of the endothelial cell type.

The PRESIDENT (Dr. J. J. Pringle) said he wished, in the name of the Section, to thank the whole of the Pathological Committee for the extreme care with which they had investigated this very difficult case; and especially Dr. Whitfield and Mr. McDonagh for their exceedingly valuable and elaborate reports upon it, which must have involved very much labour on their part.

Dr. KNOWSLEY SIBLEY desired to endorse cordially the President's appreciative remarks concerning the labours of the Committee on his case. Their elaborate report was of great interest not only to himself but to every member of the Section, and he was very grateful for the trouble they had taken.

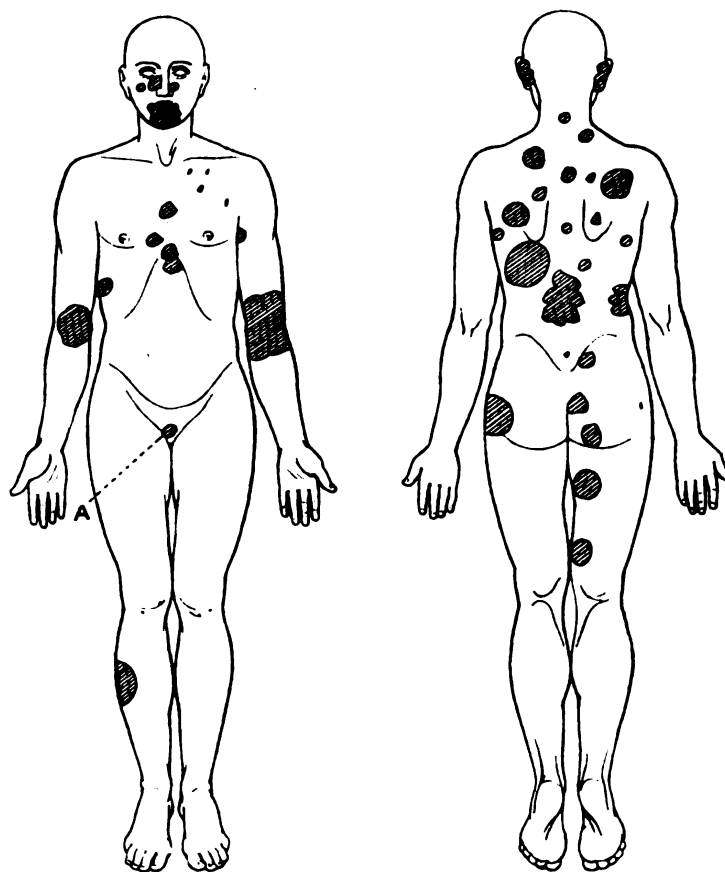
Case of Pemphigus Vegetans.

By J. J. PRINGLE, M.B.

THE patient, a man, aged 28, was a private in the Territorial Army. He previously had been employed as a labourer in dye-works. He was first seen by the exhibitor on November 26, 1914, in one of the London Military Hospitals, and the gravity of his condition being recognised, he was removed the following day to the Middlesex Hospital. The disease for which he was shown apparently began in the end of September, when his skin was said to have been chafed by his "identity disk" over the left side of the upper part of the chest and in the left armpit. Large blisters had formed there and had subsequently appeared with great rapidity over other parts of his body. The history as to the date of development of the lesions in the mouth was vague, but there could be no doubt that they appeared very early in the course of the disease, as they were striking elements in the case when he was first seen. The distribution of the disease at that time is indicated in the accompanying exceedingly rough schema.

The initial lesions were all bullæ, varying in size from a pea to a hen's egg, or large excoriated and discharging surfaces obviously resulting from the rupture of bullæ. The bullæ and excoriations were present in greatest abundance in the axillæ and bends of the elbows, over the lower part of the face, behind the ears and over the back, and particularly large blebs were present over both buttocks. These arose abruptly from healthy skin and there was no trace of herpetiform grouping anywhere. The distribution presented no marked symmetry, except in the armpits and bends of the elbows, and there was a conspicuous absence of blebs in the inguinal regions. The contents of all the bullæ were purulent. There were three large blebs on the right thigh and leg, but the left thigh and leg were absolutely free from disease and had remained so throughout. There was one large bleb on the very long prepuce and marked erosion of its mucous lining and of the glans penis. The lips and inside of the mouth were very con-

spicuously involved, blebs and deep erosions being present over both the hard and soft palates and on the tongue and buccal mucous membrane, and some were observed even in the nostrils and on the conjunctivæ. The breath was horribly fœtid. Owing to pain the patient articulated and swallowed with extreme difficulty, so that he could only be fed with liquids.



Schema showing the distribution of the disease. A, large bleb on penis ; much discharge from inside prepuce.

When first observed, the contents of all the bullæ were purulent, and throughout the case the early invasion of the essential lesions by staphylococci—certainly within three hours after their appearance—had been very striking, and probably accounted for the markedly septic temperature. On December 8, however, for the first time a few small, quite fresh blebs with clear contents had been discovered on the front of the chest, serum cultures from which were absolutely sterile. The

Wassermann reaction had been frankly negative throughout, and no growth had occurred in blood cultures after six days at 37° C. Agar cultures from the excoriations had yielded staphylococci, a diphtheroid bacillus and abundant *Bacillus proteus*. The blood picture had been practically normal throughout, and it was especially to be observed that there had been no eosinophilia. The examination of the urine was also negative, giving no evidence of acidosis or of intestinal toxæmia. It contained no albumin or sugar or aceto-acetic acid, and no abnormal amount of indican or of phenols. There was no bacilluria. The bowels had been fairly regular throughout, but the motions were intensely foetid.

The patient remained extremely ill till Christmas, his condition having been aggravated by a sharp attack of influenza; but since the New Year a remarkable improvement both in the local and general condition had occurred, which permitted of his being brought from the hospital and exhibited. Only a few abortive vesicles had developed during the preceding three weeks, and the huge erosions formerly present over his back, neck and chest had healed up, although the epidermis which had formed over them was extremely delicate, and separated off with great facility if any portion of the dressing adhered, generally to reform again rapidly. There was no trace of scarring at any point. He had gained nearly a stone in weight, and his general condition had improved out of all recognition. His temperature, however, was still abnormally high and maintained the same septic type, and to the same degree, as during the earlier stages of his illness. Ever since the subsidence of the bullæ in the axillæ the skin of these regions had presented a pronounced condition of vegetative dermatitis—or condylomatosis—which justified the connotation of the case as one of pemphigus, "vegetans"; and the early and severe implication of mucous membranes accorded with general experience of the type of disease thus designated. Although the progress of the case under treatment had hitherto been exceptionally favourable, it must not be forgotten that a few cases of recovery, or at all events of marked temporary amelioration, had been reported by competent observers; and the patient's comparative temporary *bien-être* might merely be an intermission in the course of a tragically lethal disease.

Finally, the exhibitor desired to draw especial attention to the treatment he had adopted. Since December 17 the case had been treated by weekly injections of a mixed vaccine (prepared by Dr. Carl Browning) of *Staphylococcus albus* from his blebs, of his *Bacillus proteus*, and of four coliform bacilli isolated from his fæces. At the same time he had had

prolonged starch-cyllin-boric antiseptic baths, followed by the swabbing of all the parts chiefly affected with peroxide of hydrogen lotion, and the free application of a thin zinc-ichthyol cream. It is worthy of note that his improvement had been coincident also with the nightly administration of 5 gr. of the compound soap pill, a remedy which was recommended by Sir Jonathan Hutchinson, Dr. Liveing, and many of the older British dermatologists in similar cases. The relative amount of credit to be apportioned to these measures could not be accurately gauged, but much of the patient's comfort and well-being was, doubtless, directly attributable to the assiduity with which he had been nursed.

DISCUSSION.

Dr. G. PERNET agreed with the President's diagnosis, although the case differed in the great improvement which had occurred, from those he had seen—his own and the late Radcliffe-Crocker's—all of which died. One case was treated with vaccines, but death occurred in a few months. He asked if Dr. Pringle attributed the improvement in this case to the vaccines—i.e., if up to the time of starting the vaccines the patient was not doing well as the result of general antiseptic treatment and good nursing. In a fatal case of which he published full particulars in Boeck's "*Festschrift*,"¹ vaccines seemed to help at first, but the ultimate results were *nil*. The prognosis of pemphigus vegetans he regarded as always gloomy. It was unusual for one limb to escape the disease, as was the case with the left leg in this patient, and it would be interesting to know whether he had had an injury to that leg. A nerve injury might modify the amount of eruption.

Dr. WHITFIELD said there appeared to be two types of pemphigus vegetans, varying in their degrees of severity. He had at present the first case of typical pemphigus vegetans which had ever been under his care, although he had seen some instances in consultation, and exhibited at societies. His case was almost entirely a mass of vegetation; indeed, bullous lesions were very scanty. About May last there were severe bullous erosions at the back of the mouth. The diagnosis of pyorrhœa had been made, and the back teeth had been removed, but instead of improving matters it aggravated them. Two or three months later the man was attacked with what his doctor called "*pruritus ani*," but there were no bullæ on the body. The whole perineal and sacro-inguinal region formed, however, a mass of peculiar bluish-grey condylomatous-looking material. He admitted the patient to hospital as soon as possible, and he had developed one group of clear vesicles on his thigh, from

¹ Pernet, "A Case of Pemphigus Vegetans treated on general lines and by means of Vaccines," *Arch. f. Derm. u. Syph.*, 1911, cx, pp. 509-526.

which cultivations had been made. There had been some lesions in the left eye, and very severe bullous lesions inside the nose. The vegetative lesions, however, were not simply overgrown tissue. He found in portions removed by biopsy that there were bullæ even at the base of these vegetations. Cultivation of the only group of bullæ showed merely staphylococci and streptococci. Two cultivations, of the blood and of the urine, and the Wassermann test, were all negative, and the cerebrospinal fluid was normal. He had, therefore, come to the end of his resources as to the cause. In reply to Dr. Pernet, Dr. Whitfield said the withdrawal of cerebrospinal fluid for examination made no difference to the patient; he had been carefully watched for any effects of the procedure.

Dr. SEQUEIRA agreed that there could be two types of this disease. He had had under his care a case of the mild type, in which the lesions began as blebs. The patient was sent to him by Dr. Corner, of Mile End, and she had a large number of vegetations in the flexures, as well as bullæ. He took a gloomy view of her case. She was placed in the septic ward, and given large doses of arsenic, and antiseptic dressings were applied. Recovery ensued, and the patient passed out of his care. Her stay in hospital extended over several months. Cases had been recorded in which the lesions seemed to be more related to dermatitis herpetiformis than to those of true pemphigus.

Dr. MACLEOD agreed with Dr. Whitfield's remark that possibly there was a mild and a severe type of pemphigus vegetans. The point that struck him most about the condition was the fact that in nearly every investigation of the early vesicles which had been made the contents had been found to be sterile, though they rapidly became contaminated with ordinary skin cocci. He considered that the vegetations were probably the result of secondary staphylococcic infection.

Dr. GRAY said he had had a case which might possibly belong to this group, that of a girl, who was in a surgical ward at University College Hospital with a psoas abscess. She had been in for about a year, with an open sinus. She also suffered from psoriasis, and had been under arsenic for five or six months in hospital. One day she developed some bullæ on the front of both wrists, and a few days later in both axillæ and then in both groins. They increased in size, then burst, leaving large fungating areas, which discharged freely. Some small bullæ also appeared in one or two of the psoriasis patches; otherwise they were limited to the regions named. The arsenic was discontinued, as he thought it might have been responsible for the lesions, which were then treated antiseptically. The condition cleared up in about a month. So far as he knew, she had no recurrence. He did not know how to classify the disease.

The PRESIDENT (in reply) said that cases of pemphigus vegetans undoubtedly varied widely in their degrees of severity. Cases of comparatively mild type

certainly occurred, and probably the reported cases of recovery were authenticated by fact. The four cases which had been under his care previous to the present one had all died in from six to eight months. In one of them, a young man (whom Dr. Whitfield would remember), the bullæ were confined to the throat and mouth for fully three months before they appeared on the lips and face. In answer to a question by Dr. Parkes Weber, he said that arsenic had been given in full doses when the patient first came under treatment, but it was discontinued as it seemed to cause diarrhoea, and the vaccine treatment was then substituted. He shared Dr. MacLeod's view that the vegetations were the result of secondary staphylococcic infection. There was no history or evidence of nerve injury to the left leg and thigh which would account for its immunity from eruption. Finally, he repeated his statement that he was unable to commit himself to any definite opinion as to the relative value of the vaccine, as compared with the other methods of treatment employed, and his impression was that the temporary improvement, which was manifest, was probably illusory.

Case of Lupus Erythematosus.

By GEORGE PERNET, M.D.

THE patient was a man, aged 53, in whom the disease had commenced six months previously in front of the left ear. Three months later the end of the nose became involved. In front of the left ear there was a semicircular lesion with its convexity directed towards the cheek, and it consisted of a well-defined narrow border, within which there was superficial atrophy. The ear itself was also affected. There was no similar symmetrical lesion on the right side, but the right ear showed signs of slight involvement. The end of the nose was reddened, with markedly accentuated sebaceous plugs, and when the patient was first seen the tip of the nose was occupied by a soft, moist crusting, which when removed showed gaping sebaceous orifices beneath. The patient was otherwise healthy, and it was not possible to discover any source of toxic trouble. There had been some history of exposure lately as the patient had been riding on the tops of omnibuses. There was no history of phthisis in the family. The case was shown on account of the age, which was rather later than usual, and the asymmetry. He had improved on salicin internally, and a calamine lotion locally.

Case of Pityriasis Rubra Pilaris associated with Pregnancy.

By H. W. BARBER, M.D.

THE patient's age was 43. At the time of demonstration she was seven months pregnant, this being her seventh pregnancy. She had never previously had any skin trouble. There was no evidence of tuberculosis in the family, nor did she present any symptoms of such infection herself: a von Pirquet reaction had not yet been done. She stated that she had first noticed the eruption on her chest about two months ago, and that a week later she observed that the skin of her feet and hands had become hard and thickened. At the same time the skin of her face and neck began to feel dry and hot. Her general health had been good.

On examination, the skin of the intermammary area was seen to be covered with raised follicular papules in the centres of which dark horny plugs could be seen. Though most numerous in the area indicated, these papules were also present on the rest of the trunk and the upper parts of the arms. The skin of the hands and feet was much thickened and of a dark brown colour; the finer lines had been replaced by deep, coarse fissures. Her scalp was covered with thick, whitish scales. The face and neck were reddened and scaly; this condition was particularly well seen round the ears. The nails were not affected.

The case seemed to be a fairly typical one of pityriasis rubra pilaris, the chief points of interest being the age of the patient and the association with pregnancy.

DISCUSSION.

The PRESIDENT said the diagnosis was not, in his opinion, open to doubt, but the case was exceptional in regard to its limitations to certain regions, the disease in his experience being usually more extensive in area. He did not think there was anything more than a fortuitous association with pregnancy. Pityriasis rubra pilaris was a very rare disease, whereas pregnancy was a very common condition. He hoped Dr. Barber would be able to show microscopic sections from the lesions in view of recent divergent views about them having recently been expressed at the Section.

Dr. WHITFIELD said he had not seen this disease in a pregnant woman before: he regarded the association as a mere coincidence.

Dr. PERNET said he thought it possible that there might be a connexion between the eruption and the pregnancy. The ætiology of pityriasis rubra pilaris was not known, and the rashes of pregnancy were very multiform.

Case of Dry Gangrene of the Toes in an Infant.

By J. H. SEQUEIRA, M.D.

PATIENT was a male child, aged 16 months, suffering from dry gangrene of the toes. The mother died four months ago in an infirmary from pulmonary tuberculosis, and the child had been much neglected. It was stated that there had been no previous illness, that the child had begun to walk when aged 11 months, but that since the toes had been affected he had not attempted to do so. Dentition had proceeded normally. There was nothing in the history to suggest exposure to cold, traumatism, or any obvious cause of the condition.

When the patient was admitted to the London Hospital the following lesions were present: On the left foot the little toe was affected with dry gangrene at its extremity, and chiefly on the plantar surface to $\frac{1}{8}$ in. below the distal margin of the nail. On the right foot the big toe presented a small area of dead black skin on the plantar surface. On the middle toe the area of gangrene extended from the end of the toe to one-half the length of the nail. On the little toe there was a patch of gangrene involving the pad at the end. The areas of gangrene were black, quite dry, and separation had taken place on the left little toe, leaving a healed surface. There was no evidence of acro-asphyxia and the skin immediately adjacent to the black patches was of normal colour. The skin elsewhere presented no abnormality. The fingers and the auricles were unaffected. There was no evidence of visceral disease. The child had put on flesh during the short time he had been in hospital, and was apparently in good general health; he slept and took food well. The parts had been kept warm by woollen socks and cotton-wool, but no other treatment had been necessary.

The exhibitor stated that neither at the London Hospital nor at the North-Eastern Hospital for Children had he seen terminal gangrene in an infant, and invited suggestions as to the possible cause. He regretted that the circumstances under which the child had been living prevented his giving a detailed account of the condition in its earlier stages.

DISCUSSION.

The PRESIDENT said he had not the least idea of the cause of the condition in so young a child. He assumed from Dr. Sequeira's account that there was no local asphyxia, such as that met with in Raynaud's disease, or other evidences of that condition.

Dr. PERNET said he had not previously seen a case of this kind in a child, but what occurred to his mind was the symmetrical gangrene of the extremities of Raynaud. In seeking for an ætiological factor, he noticed that the child's nose was depressed and the forehead prominent, so that the possibility of congenital syphilis should be entertained.

Dr. F. PARKES WEBER asked whether at the commencement the cyanosis was more extensive than corresponded with the final gangrene, only the worst parts becoming gangrenous. If so, he thought that it probably belonged to the group of Raynaud's disease in children, many of which cases were believed to be connected with congenital syphilis. In a few of the cases there were likewise attacks of paroxysmal hæmoglobinuria, which in adults might occasionally be connected with acquired syphilis, also with malaria. Some of the cases clinically classed as Raynaud's disease were possibly really due to syphilis or malaria, or to both combined, the vascular spasm occurring as a temporary condition—at the commencement of an attack—and perhaps never recurring after the onset of the distal necroses.

Dr. DOUGLAS HEATH said the case appeared to him to be more like the necrosis found as the result of disease of peripheral blood-vessels in adults than the result of cold. In his experience, when there were broken chilblains and frost-bites it was the dorsum of the toes which was involved, and similarly the dorsum of the fingers. The occurrence of an end-necrosis favoured its being due to arterial disease. He thought it quite likely that there was a congenital syphilitic element in this case.

Dr. WHITFIELD said he was not familiar with Raynaud's disease at this age, but at present there was no blueness or cyanosis at all. He had had under his care one or two cases of Raynaud's disease, and when they were not actually in the paroxysmal stage they remained with very blue hands. This child seemed to have a good circulation. With regard to the site of the gangrene, the child might have tried to walk on cold slabs, and then the tips of the toes would be in contact with the cold surface. But he thought there was something more about the case than simple exposure.

Postscript.—The Wassermann reaction which has been tested since the child was shown at the meeting has proved negative.

Bristle from Hair-brush with Ova of *Hæmatopinus Suis*.

By J. H. SEQUEIRA, M.D.

DR. SEQUEIRA also showed ova of *Hæmatopinus suis*. The ova were large brownish-black "nits," attached by a collagenous collar to a bristle from a hair-brush. Dr. A. E. Shipley, F.R.S., had kindly examined the specimen and recognised the ova as those of the *Hæmatopinus suis*—the common pig-louse. The nits were much larger than those of the human head-louse, and had lost their opercula. The parasite did not attack the human subject. Dr. Sequeira was indebted to Lieut. A. C. Palmer, R.A.M.C., F.R.C.S., for the specimen.

Erythema Gyratum Recurrens.

By ALFRED EDDOWES, M.D.

THE patient was a girl, aged 5, of strumous type. The lesions a week previous to exhibition were round, saucer-shaped, or perhaps better described as resembling a hot-water plate, the centres being concave, the edges raised quite $\frac{1}{8}$ in., the sides abruptly ending in the normal skin. The skin of the general surface was thin, and the patient was poorly nourished. This was the sixth attack in two years. Each attack had lasted about three months. One or both eyes generally suffered. Now it was the left that was affected. The mouth was slightly involved also. Such a definite type was rare. In Crocker's Atlas there was a good drawing and description of such a case, and there was also a good picture of it in the Sydenham Society's plates. The lesions, which were very striking, were usually few in number and tended to appear symmetrically; much of their typical appearance, so distinct a week previously, had changed already. Willis spoke of erythema annulare as a common form. It could not be that he had this type in mind when he made that statement.

Ringworm of the Hand.

By J. M. H. MACLEOD, M.D.

THE patient, a middle-aged woman, presented a patch of eczematoid ringworm on the palm of the right hand, occupying an area about the size of a five-shilling piece, commencing between the first and second fingers, and spreading out in a ringed fashion over the palm. The patch was smooth, pinkish-red, broken up by an inner concentric ring, and limited by a border of exfoliating epidermis. The woman had come to the Victoria Hospital for Children with three children, all suffering from microsporon ringworm of the scalp, and it was presumed that they were the source of the infection. Though cases of eczematoid ringworm, due to the *Epidermophyton inguinale*, were by no means uncommon, the infection of the adult by microsporon ringworm was exceedingly rare, and the exhibitor could only recollect three such cases in his hospital practice. An examination of a piece of the exfoliating epidermis showed an abundance of fungus, but its exact nature had not yet been ascertained, as there had been insufficient time for the culture to grow when the case was exhibited.

The exhibitor considered it probable from the concentric appearance of the lesion that the fungus was of animal origin, and was possibly the microsporon of the cat, but he would report upon it later if a culture were obtained.

DISCUSSION.

Dr. GRAY said he had observed two cases of eczematoid ringworm of the palm, and in both of them the organism was an ectothrix.

The PRESIDENT said that some time ago, when this question was a burning one, Dr. MacCormac and he had investigated many eczematoid eruptions on the hands in which an epidermophyton was discovered, which would previously, without microscopic examination, have been considered as examples of vesicular or dysidrotic eczema.

Dr. SEQUEIRA said he had just reviewed a small paper by Dr. Murray and Dr. Paul, of Sydney, Australia, and these authors said that vesicating eruptions of the dysidrosis type were found to be associated with a fungus in 80 per cent. of the cases; they insisted on the importance of an examination for fungi in cases of dysidrosis.

Dr. DORE thought that Sabouraud did not recognise an ectothrix cat ring-worm, but included it in the *Microsporon lanosum* group. Apparently Sabouraud regarded the cat microsporon as rare in France, and described the ectothrix form as *Trichophyton niveum radians* of the *Ectothrix microides* group.¹

Dr. PERNET said that in 1904, at the old Dermatological Society of London, he had shown a case of tinea circinata in a young adult woman, who had contracted it from a cat. It was a case of cat microsporon, an observation which he had confirmed by culture.²

Case of Hyperidrosis of the Palms.

By H. G. ADAMSON, M.D.

(Shown by T. P. BEDDOES, F.R.C.S.)

THE patient, a girl, aged 16, had had the complaint as long as she could remember. There was profuse and continuous sweating of the palms and the palmar surface of the fingers of both hands. Changes of temperature seemed not to affect the condition. The perspiration was so profuse that the sweat dripped from the hands. Neither the soles nor any other part of the body was affected. From time to time large vesicles formed about the fingers and burst, leaving sore places. It was proposed to treat the case by X-rays "filtered" through an aluminium screen.

DISCUSSION.

The PRESIDENT said that all members of the Section had seen cases of this condition, although perhaps not quite so extreme. One case, which had impressed itself upon his memory, was that of a medical man who had a severe sunstroke in Japan, and, after recovering from that illness, hyperidrosis developed and persisted permanently. When he entered his (Dr. Pringle's) consulting room, sweat was oozing through his boots, as if he had been wading in a stream; it also oozed through his gloves, and he remained permanently disabled in consequence. He also had seen the case of a well-known public man who, when about to make a speech, sweated much as this girl did, although in the intervals, when nothing occurred to make him nervous, his sweat apparatus was quite normal. He regarded the prognosis as bad, and he would

¹ Sabouraud, "Les Teignes," 1910, pp. 229, 376, and 377.

² Brit. Journ. Derm., 1904, xvi, pp. 347 and 458.

like to hear suggestions as to the treatment of such extreme instances as he had mentioned. The temporary benefit of X-rays in cases of less severity was an undoubted fact.

Dr. SEQUEIRA said he had seen the condition almost as severe as in the present case. It was notoriously difficult to treat. He followed Crocker in giving large doses of sulphur in some cases, though he could not trace much benefit from that treatment. Occasionally he had seen improvement follow the application of X-rays, but there was not so much benefit in this type of case as in excessive sweating in the axilla, &c. He had seen hyperidrosis on an area of the forehead which had previously been the seat of herpes, and it persisted for a long time after the herpes disappeared. He had seen unilateral sweating, which was set up by the stimulation of acids. Both those facts pointed to a nervous origin of the condition.

Case of Lichen Spinulosus.

By E. G. GRAHAM LITTLE, M.D.

THE patient was a girl, aged 10. The history furnished by the mother was to the effect that the eruption had appeared for the first time twelve months ago on the knees, and had slowly progressed since that date to occupy the present positions. The parts chiefly affected were the summits of the shoulders, the posterior wall of the axillæ, the back and front of both the elbows, the outer aspect of the thighs from the level of the buttocks to the knees, and the back and front of the knee-joint. Two kinds of lesions were to be distinguished, a perfectly pale, colourless follicular papule with projecting spine, and a coarser, reddened acuminate papule exactly like the papule of pityriasis rubra pilaris. The reddened areas were chiefly noticeable on the front or extensor surfaces of the elbows and knees, the lesions elsewhere than in these positions being of the pale variety. There was no itching, nor were other subjective sensations in connexion with the patches noted. In view of some recent suggestions of the tuberculous associations of the disease, it might be of interest to note that the patient's elder sister had been operated upon for tuberculous glands; but there was no suspicion of tuberculosis in this patient.

DISCUSSION.

The PRESIDENT asked whether it was certain that this child had not got congenital keratosis follicularis. He thought, chiefly on the ground of the

distribution of the eruption, that this was possible, and that the original lesions had been modified by irritation. He saw nothing resembling lichen planus papules.

Dr. LITTLE replied that no part of the eruption was congenital, and no other member of the family had any similar disease.

Case of Pityriasis Rosea.

By E. G. GRAHAM LITTLE, M.D.

THE patient was a Jewish boy, aged 10. The eruption was unusually scaly and erythematous, and on the back there were some darkened scaly patches contrasting with the vivid pink of the greater part of the rash. There was no history of a pioneer patch, and the whole eruption had come out acutely nine days previously. It was principally present on the trunk, with a few scattered patches on the upper arms and thighs. It was moderately itchy. The unusual degree of scaling made the diagnosis of seborrhœic eczema a possible one, but the distribution, acute onset, and colour favoured the diagnosis of pityriasis rosea; in corroboration of this was the fact that there had been some premonitory symptoms of sore throat, and headache, and there was considerable and general glandular enlargement.

Dr. LITTLE had seen an unusual number of cases of pityriasis rosea recently in his two skin clinics, and asked whether that was the experience of others. December and January he found were the months of most frequent incidence.

DISCUSSION.

Dr. SEQUEIRA agreed with the diagnosis.

Dr. EDDOWES confirmed Dr. Little's observation that pityriasis rosea was very prevalent in London.

The PRESIDENT agreed with the exhibitor's views. The type of eruption was that which Dr. Little and he used to discuss when Dr. Little was his clinical assistant fifteen years ago, and which gave rise to difficulties of differential diagnosis between acute seborrhœa and pityriasis rosea. He had now come to the conclusion that many of the conditions he then thought to be acute seborrhœa were really unusually inflammatory pityriasis rosea. Superficially the condition was almost like psoriasis. He had seen a case of this kind irritated by a chrysarobin treatment into general exfoliative dermatitis.

Case of Parapsoriasis-en-plaques.

By E. G. GRAHAM LITTLE, M.D.

THE patient was a young girl, aged 12. The most characteristic of the patches was situated on the upper and outer part of the right thigh, where an area the size of the palm of a man's hand was to be seen, with a faint rose colour and a slightly serpiginous margin, and an almost imperceptible infiltration, so that the whole affected area was slightly swollen and raised. The follicular orifices were unduly patent in this region, but there was no spiny papule. There was no subjective sensation complained of in the affected parts; similar patches were present on the opposite thigh, on the buttocks, on the legs, and on the summit of the shoulders. The condition had persisted for over twelve months, and had recently been considerably altered by treatment with a strong salicylic acid ointment continually applied.

Lymphadenoma with Glandular and Cutaneous Lesions.¹

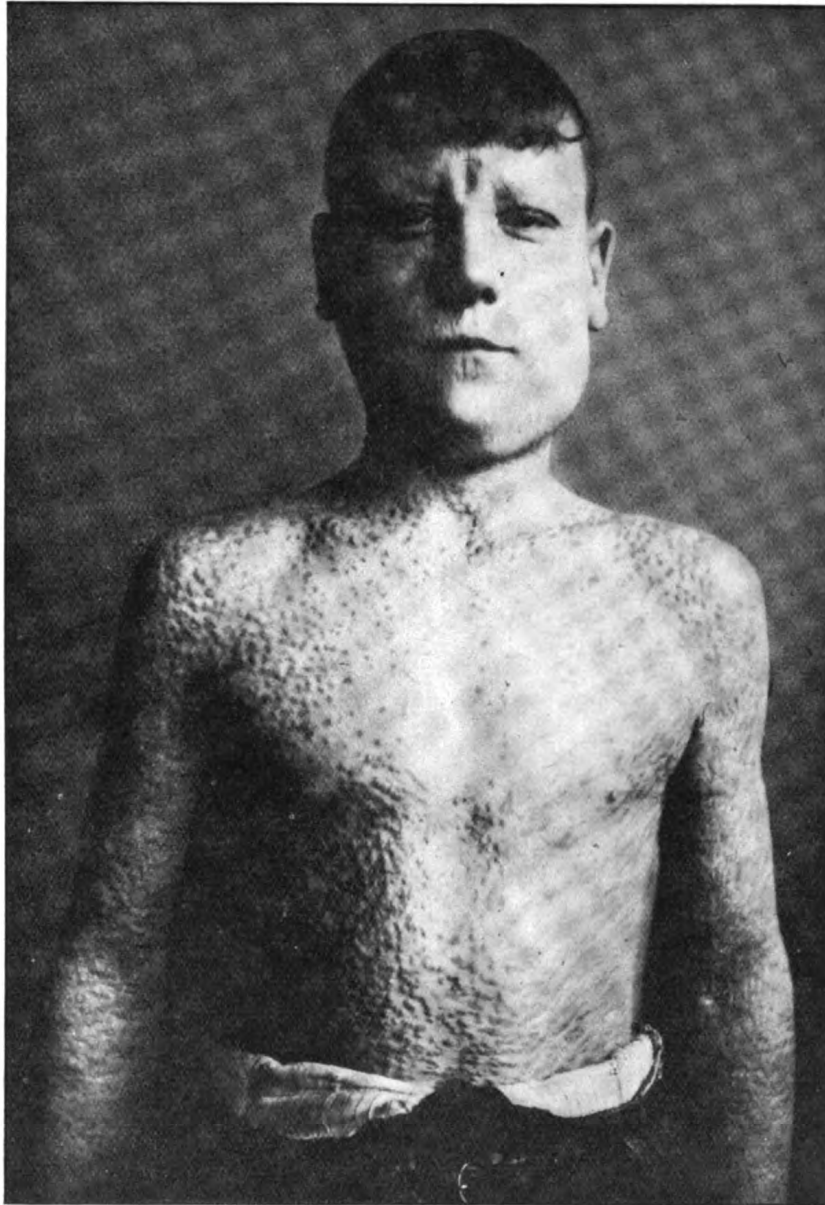
By W. KNOWSLEY SIBLEY, M.D.

THIS case had been shown at the meetings of the Section held in June and October, 1914, when it was referred for investigation and report to the Pathological Committee. Since that date the patient had been taking arsenic internally and had had several applications of X-rays to the tumours over the occipital region, the enlarged glands in the sides of the neck, and to that in the left groin, and also to the skin over the left arm, forearm and hand.

In December the patient had had a severe attack of herpes zoster gangrænosa, preceded by considerable pain over the left lower ribs, which had left extensive and deep scarring. He had also from time to time complained of pain in the distribution of the median nerves, which disappeared on omitting the arsenic for a day or two. At the present time he was taking 12 minims of liquor arsenicalis, three times a day after food.

There was a very considerable improvement in his general condition. The skin lesions were much less marked, though the actual local appearances varied considerably from time to time, almost from day to day. The tumour-like formations on the back of the neck had completely disappeared, and all the enlarged glands which had been treated with X-rays had considerably decreased in size.

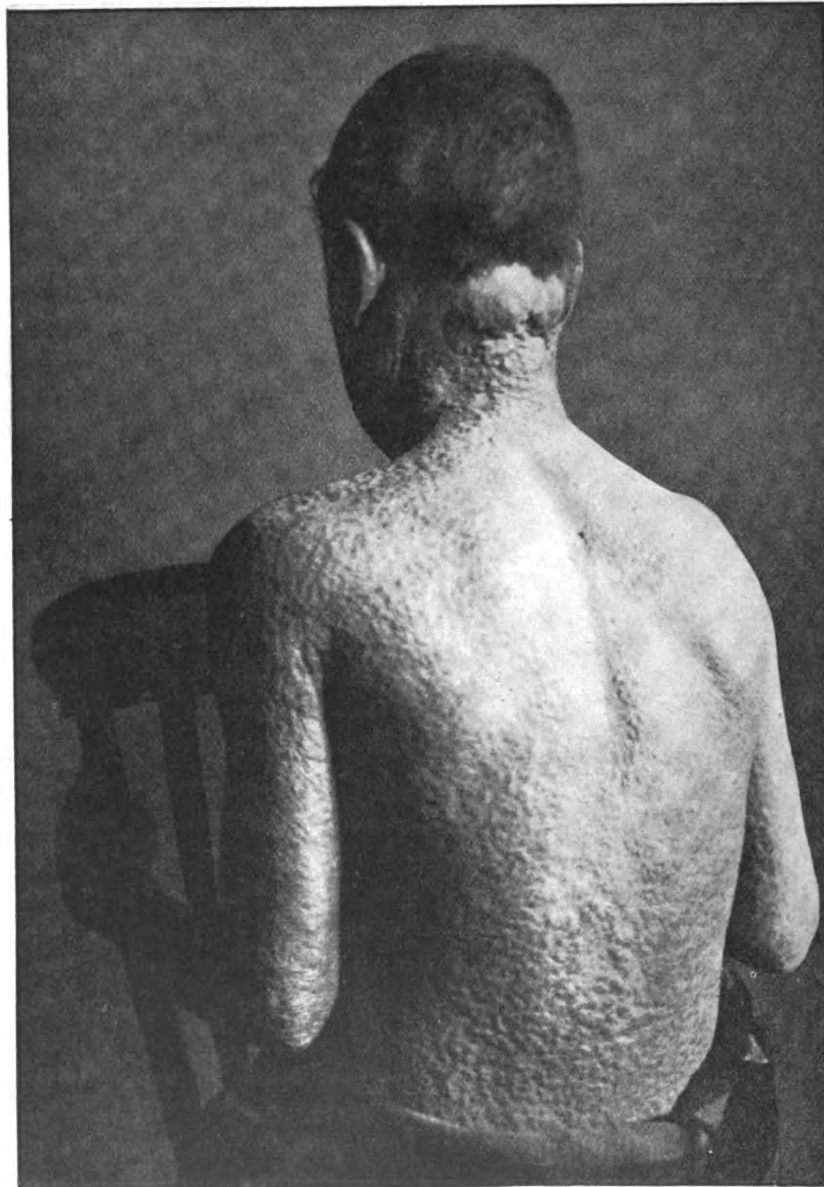
¹ The full report of the Pathological Committee on this case is published (*see p. 63 et seq.*).



Dr. Knowsley Sibley's case of lymphadenoma with glandular and cutaneous lesions.

FIG. 1.

Taken on October 21, 1914, showing enlarged glands in neck, and general eruption over chest and arms.



Dr. Knowsley Sibley's case of lymphadenoma with glandular and cutaneous lesions.

FIG. 2.

Taken on October 21, 1914, showing tumours on back of neck, and general eruption over the back.

Dermatological Section.

February 18, 1915.

Dr. J. J. PRINGLE, President of the Section, in the Chair.

Case of Multiple Tumours.

By E. G. GRAHAM LITTLE, M.D.

FROM clinical evidence alone the exhibitor had regarded the case as one of fibrosarcoma, but microscopical examination proved the tumours to be due to chronic fibrosis of the fat zone. The patient, a gentleman, aged 49, gave an extraordinary history. Fifteen years ago he was treated, first in Turin and later in Geneva, with hypodermic or intramuscular injections of "phosphorus," ordered for a nervous affection from which he was supposed to be suffering. He had about fifteen injections of this, given every alternate day, some by the doctor and some by himself. Nodular swellings had resulted which had persisted for fifteen years and latterly had increased in size. In one or two instances there was slight redness round the tumour, but for the most part there was no inflammation, and the patient suffered hardly any discomfort. There were about twelve tumours, each about 2 in. by 1 in. in size, in the form of flat masses of induration which affected the whole thickness of the skin and were movable with it over the subjacent tissues. The diseased area could be lifted up, and formed a thickness of about $\frac{1}{2}$ in., and one of these which was excised confirmed the clinical impression. The surface of the mass was, except in one or two instances mentioned, of the same colour as the surrounding skin, and was slightly puckered. The tumours were distributed on the upper parts of both buttocks and on the inner and upper surface of both thighs. These were also the sites of the injections, according to the history. The masses were extraordinarily hard and firm, and felt very like fibrosarcomata. One of the smaller tumours from the buttock was excised and sections cut from it, and examined by Dr. Kettle, Pathologist to St. Mary's Hospital, who furnished the following report:—

"Sections were taken through the greatest diameter of the nodule

and from the surrounding fat, and were stained in various ways. Unfortunately it was not possible to make satisfactory preparations stained for fat, as the specimen had been sent for examination put up in alcohol. The skin seems healthy and shows no change of any importance. The tumour presents a very anomalous appearance. It is composed, for the most part, of a very dense fibrous tissue which contains few fibroblasts, and shows little or no evidence of activity. Occasionally, especially at the deeper margin, there are groups of mononuclear cells, but the main mass of the tumour appears to be quiescent. Imbedded in this fibrous tissue are large groups of irregular cells varying very much in size and shape, and having a vacuolated cytoplasm and a compressed, deeply staining nucleus. Sometimes these cells are larger, denser, and multinucleated. These groups of cells occur especially in the more superficial zone of the tumour and its deeper part, and they appear to be invading the normal fat at the periphery, either independently or in association with prolongations of the fibrous tissue. They are, I believe, fat cells of the embryonic type. The appearances may be explained, I think, by regarding the condition as one of chronic inflammatory fibrosis associated with regeneration of fat. In the central parts the inflammation is old, but at the periphery there is some fibroblastic reaction and cellular infiltration pointing to an active process, although there is no evidence as to its nature. The formed vessels show a considerable degree of sclerosis, also suggestive of an old inflammation. Even so, the fat reaction seems to me to be highly peculiar and difficult to explain, for it appears to be present in advance of the inflammatory area. The tumour is not a fibrosarcoma, but there is just the possibility that it might be a highly atypical form of liposarcoma. In the absence of any localised mass of growth, however, this is scarcely likely, and I should not care to suggest such a diagnosis without much stronger evidence. Under the circumstances, I think the condition must be regarded as a chronic inflammatory one, of unknown origin."

Expressions of opinion were invited as to the prognosis and treatment.

DISCUSSION.

The PRESIDENT (Dr. J. J. Pringle) remembered having seen one apparently identical case, which was diagnosed after microscopic examination as multiple fibro-lipomata; but there was no history of previous puncture or other traumatism. There were six growths present, and they were successfully removed by a surgeon.

Dr. PERNET said he had never seen a similar case, but it reminded him of one something like it under Radcliffe Crocker a number of years ago. The patient attended once only, and no microscopical examination was made. Radcliffe Crocker's suggestion was that the tumours might be due to drug-taking. There had been no injections, as in the present case.

Dr. MACLEOD agreed that the obvious feature in the case was a fibromatosis, which was well marked in the hypoderm about the fat lobules. He was unable to express an opinion from the section exhibited as to whether there was a new lipomatous formation. He considered it quite possible that the fibromatosis might have been set up by the injections.

Two Cases of Dermatitis Factitia.

By GEORGE PERNET, M.D.

Case I.—A female patient, aged 23, with a number of superficially ulcerated and irregularly shaped lesions, and the remains of older ones and scars, about the upper hemisphere of the left breast. The process had been going on for a year on and off. There was a history of similar lesions in the same situation three to four years previously. There was also an ulcerated lesion on the right leg. According to the patient, the individual lesions lasted three months, then fresh ones appeared. There was very marked tenderness in the supra- and infra-mammary areas on the left side, but no ovarian tenderness. Some anæsthesia of the left border of the tongue was also present a few days previously, but there was no pharyngeal anæsthesia. The patient was left-handed in a general way for rough work, but she used her right hand for writing.

Case II.—A female patient, aged 30, with a history of three years and four months' duration. The condition was said to have been started by the accidental discharge of shot into the left forearm. Now the extensor surfaces of the left upper limbs were occupied by irregularly shaped, superficial ulcerations, crusts and scars. The individual lesions get quite well, but break down again when the patient resumes work. On the left side, from the shoulder and curving down over the left breast, were a number of scars, hypertrophic, irregular in shape (lozenge, angular and elongated), and reaching on the shoulder to near the spine of the scapula (within radius of fingers of the right hand thrown over left shoulder). On the left side of the body, in the mid-axillary line and about the region of the last ribs, were the remains of

recent lesions superficially reddened, and also the remains of older ones. The patient was right-handed. A few days previously, on her second visit, she presented some recent more or less quadrilateral bullæ of the *pomme soufflée* type.

DISCUSSION.

Mr. SAMUEL said he would like to discuss these cases from a psychological point of view. He did not agree that all dermatitis artefacta cases should be called (as they were in some text-books) *feigned eruptions*. There were two chief classes of cases—viz. (a) the true malingerer, where the artefact was produced *consciously* for the sake of gain or freedom from work; (b) the other more common class of case—viz., the hysterical dermatitis artefacta. It was at first sight difficult to appreciate the reason for these hysterical manifestations. It was commonly said it was due to the desire to attract sympathy, or suggested the patient was devoid of reason. Mr. Samuel could only briefly touch upon the explanation, but, according to Freud, it was somewhat as follows: Freud regarded hysteria just as he did all the psycho-neuroses, as the result of conflict between factors of the sexual instinct in its broadest sense and that of herd instinct (i.e., the ethical code, customs, conventions, laws, &c., of the society the individual belonged to). In most normal individuals the sexual instinct was sublimated into useful social channels, but in the neurotic the sublimatory process was not achieved, and the inevitable conflict, with its accompanying emotional tension, took place in the patient's mind. This intolerable state of tension was got rid of by a process of *repression*, where the offending combatant—viz., the sexual instinct—was pushed back into the unconscious (it was noteworthy that most of the cases were young single girls with no outlet for the sexual emotion). Although repressed, the idea did not cease to exist, but, on the contrary, acted as a foreign body, constantly striving for exit and expression. It could not do this in consciousness owing to the repressing force (Freud's endopsychic censor), but did so indirectly in all kinds of ways, so long as the subject did not recognise it in its disguise—viz., by phobias, hysterical paralyses, anæsthesia, and artefacts—so that these manifestations could be looked upon as indirect expressions of the sexual instinct and emotion. Freud called them conversion hysterias (the idea converted into physical stigma). Being unconscious, the idea was not under the control of the will, so became dissociated and assumed an automatic action. It was obviously useless and unfair therefore to take the patient to task or confront them with the act which was automatic, just as functional anæsthesia and paralyses were dissociated. One must try to reach the unconscious by hypnosis and make suggestions in that condition; but these hysterics were hard to hypnotise, and even then one was only dealing superficially with the trouble, which would recur in other forms. The most rational treatment was that of psycho-analysis (a very long and difficult procedure requiring great experience and special technique), by which the submerged idea was reached and

made conscious. The patient was reintroduced to his conflict in consciousness and made to fight it out, assisted considerably by sublimating the striving instinct into useful social channels. One should never ridicule these poor sufferers or regard their symptoms as trivial.

Dr. GRAHAM LITTLE did not agree with Mr. Samuel's contention that patients should not be confronted with the accusation of self-mutilation when this could in fact be proven. He had been struck with more than one demonstration of the rapidity of cure when the patients knew that they had been found out.

Dr. F. PARKES WEBER thought that of all diseases related to disorders of the psychical system, artificial eruptions in young women most deserved study from the psychical point of view, and it would have been a great advantage if the followers of Freud's teaching had concentrated upon this subject much of their psycho-analytic investigations. It would be a great gain to be able to clear up the mysterious mental element in these cases.

Dr. PERNET replied that he agreed with some of the views which Mr. Samuel had expressed. In 1909 he read, in Philadelphia, a paper on "Psychological Aspects of Dermatitis Factitia."¹ Moreover, at the Salpêtrière, in the days of Charcot, he had seen many cases of hysteria. But he did not agree with Mr. Samuel's definition of hysteria as a conflict between primary instincts. Janet, in his "Automatisme Psychologique," discussed hysteria very fully. Dr. Pernet had suggested that in some of these cases there was perhaps an alternation of personality. As to Freudism, that was another story.

Case of Coccidiosis Avenerea, with Microscopic Specimens.

By J. E. R. McDONAGH, F.R.C.S.

MR. McDONAGH read some notes of this case. The patient, a big and healthy-looking man, aged 22, was brought to him by Mr. Drew (Oxford), complaining of a rash on his elbows and penis. When the rash appeared the patient was stationed in the North-west Frontier Province (India), and the following was the patient's account of the case. In August, 1914, he was playing hockey when he fell and cut both knees and the right elbow. A dressing was applied to the knees, but as the elbow wound was trivial no attention was paid to it. The knees healed quickly, but the wound on the elbow healed slowly.

¹ Vide Pernet, *Trans. Amer. Derm. Assoc.*, 1909; also the *Journ. of Cutan. Dis.*, New York, 1909, xxvii, p. 547.

Two months later a rash developed outside it and had been gradually spreading since. In September, 1914, the patient had what he called a "go of temperature," which lasted for three weeks. He had never had fever before, so the diagnosis made at that time was "fever following a frontier sore." Many doctors saw the sore on the elbow, and most were of the opinion that it was a "frontier sore." In November, 1914, a rash appeared on the penis, and a month later the left elbow became affected. The patient was treated with arsenic internally and various ointments were applied locally without any result.

When Mr. McDonagh saw the patient he was only on a few days' leave from the front, and it was on this account that he was unable to show the case. The lesion on the right elbow was a little bigger than a five-shilling piece; it was purple-blue in colour, slightly crusted in parts, and here and there were small depressed scars. The patch looked not unlike a sarcoid. Outside the patch were several irregularly distributed but discrete papules. The papules were about the size of a hemp-seed, red-brown in appearance, with somewhat of a transparent look, like the apple-jelly nodules in lupus. Some of the papules were crusted, a few had coalesced, but the base upon which they were situated was not inflamed. The rash on the penis and the left elbow was papular and indistinguishable from the papules just described. The papules on the penis affected the glans, the corona, and the under surface of the prepuce. When the under surface of the prepuce was stretched several papules were seen to be developing, so a portion of the tissue in this region was excised for microscopical examination. The patient had no enlargement of his lymphatic glands, nothing else abnormal could be discovered; he had never had sexual connexion, and the Wassermann reaction was negative in all dilutions.

Thinking the case was one of an infective granuloma, and probably protozoal in origin, he gave the patient potassium iodide internally and unguentum iodex externally, with the result that in four days' time there was a very distinct improvement.

Histological Examination of an early Papule.—Situated in the deeper layers of the corium was a circular cellular infiltration, about 1 mm. in diameter. The mass was perfectly circumscribed and there was no surrounding cellular infiltration. The mass might be said to consist of three parts: an outer layer of plasma cells, then a layer of mixed plasma cells, lymphocytes and endothelial cells, while the centre was mainly occupied by lymphocyte-producing endothelial cells. Hence the mass was not unlike a lymphoid follicle in a chronically inflamed

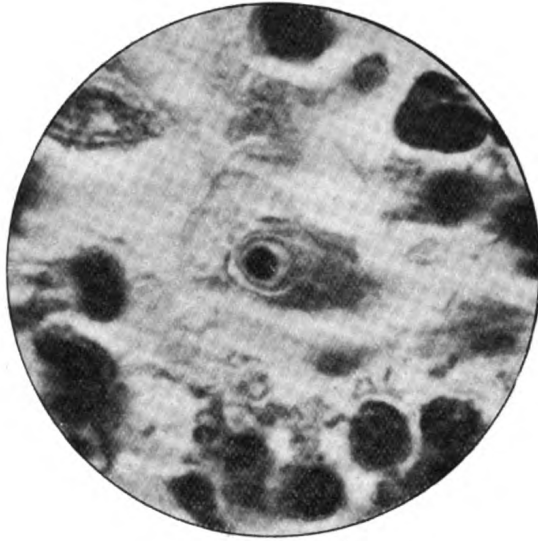


FIG. 1.

Trophozoite.

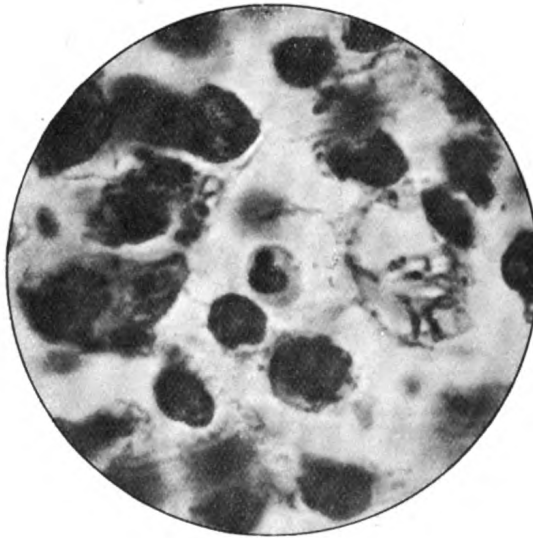


FIG. 2.

First division of trophozoite.

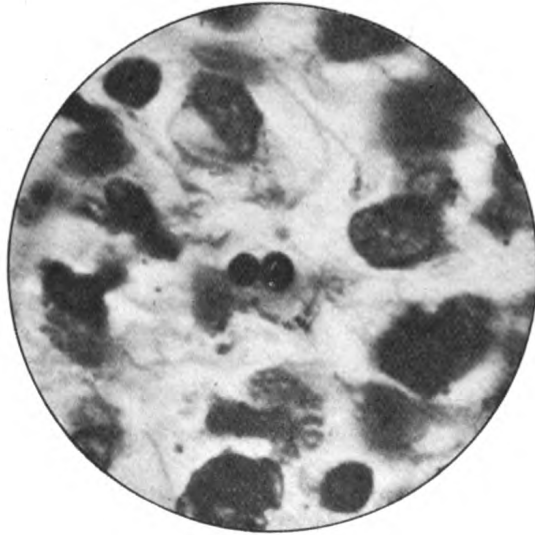


FIG. 3.

Development of trophozoite into merozoite.

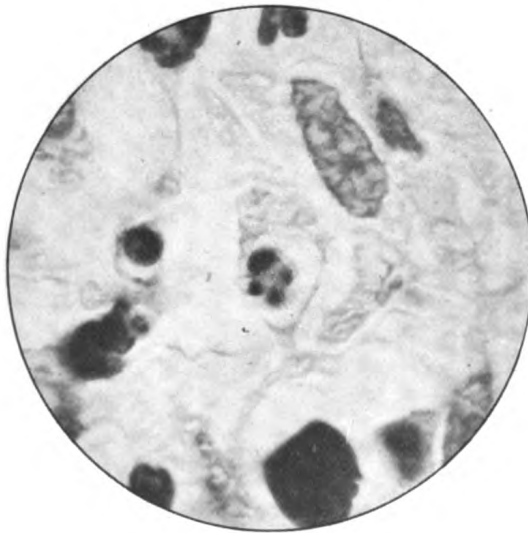


FIG. 4.

Development of merozoite into spores.



FIG. 5.

Intracellular development of spores.



FIG. 6.

Extracellular development of spores.

lymphatic gland. Mainly in the intermediary zone were to be found some intracellular bodies, which were markedly pyroninophile, suggesting at once that they were parasitic. The cell affected was the endothelial cell, and the following were the phases which could be discerned:—

(1) A bright pyroninophile mass lying in its own unstained protoplasm, and the whole situated in a sac outlined by the edge of the protoplasm of the endothelial cell, and in one part by the concave inner surface of the nucleus (trophozoite) (figs. 1 and 2).

(2) An inclusion body in which the pyroninophile mass had become divided into two (merozoite) (fig. 3).

(3) Inclusion bodies in which the pyroninophile masses had further divided into four, eight, and so on (spores) (figs. 4, 5, 6).

The more developed was the inclusion body, the more degenerated was the endothelial cell, so that when the body had formed what appeared to be spores, it looked as if it was extracellular. The inclusion bodies were optically active, and gave the same microchemical reactions as the phases of the *Leucocytozoon syphilidis*, to the asexual stage of which they seemed to correspond.

In the opinion of the exhibitor the case was one of what might be called human coccidiosis, in which only the asexual stage was perpetuated. He had seen somewhat similar bodies to these in granuloma inguinale and in the sections of Dr. Sequeira's case which was recently submitted to the Pathological Committee of the Section.

From what had been said about this case, the most reasonable explanation to offer would be that the organism entered the wound on the right elbow from the earth, developed *in situ*, gained entrance to the circulation, caused fever, and then settled down in various areas to produce lesions. Considering how common coccidiosis was in animals, it was surprising that many varieties had not already been described in man. In the same way that it had been claimed that some cases of infective granuloma, which had been wrongly diagnosed as syphilis, were sporotrichosis, the same claim would probably be made out for coccidiosis. He was at present investigating certain primary syphilitic lesions, which were not followed by further symptoms, and which did not respond to treatment, unless it were in the form of iodine preparations. He had already come across five cases in which only the asexual stage of the *Leucocytozoon syphilidis* could be demonstrated.

Whether the parasite in these cases was really the *Leucocytozoon syphilidis* or some other coccidium remained to be seen. Anyhow, there were small differences in the various cases he had seen, which he hoped to give in fuller detail later.

Case of Favus of Glabrous Skin.

By S. E. DORE, M.D.

DR. DORE said the case had been somewhat spoiled for demonstration purposes by treatment. The patient, a girl, aged 10½, presented two oval, erythematous, slightly scaly patches on the chin and right side of the neck near the angle of the jaw. There was also a similar lesion on the outer side of the right knee. When first seen the patches were indistinguishable clinically from circinate ringworm but for the fact that there was a typical favus cup in the centre of the lesion on the chin. He thought it was probably a mouse favus. Cultures and a stained microscopical specimen were shown. The mother said there were mice in the house, but the one she had brought him was healthy. The patient was English, and neither mother nor daughter had ever been out of this country.

DISCUSSION.

Dr. ADAMSON said that mouse favus in children due to *Achorion Quinckeanum* was fairly common in this country, and several members had shown examples. He did not think the culture exhibited by Dr. Dore was an *Achorion Quinckeanum*, which gave a more luxuriant white downy growth. It was not unlike a large-spored trichophyton culture, and he thought it might be the "trichophytiform favus," which had been described by Sabouraud, but not previously recorded in this country. It was not the ordinary *Achorion Schönleini*.

Dr. DOUGLAS HEATH said he had had two cases of mouse favus, and the cultures he obtained from them were white and downy. The present culture was almost of a buff colour, and drawn in towards the centre, so it seemed different from the cultures of mouse favus with which he was familiar.

Dr. MACLEOD said that he did not consider that the cultures shown were ordinary human favus, and thought that they were somewhat less fluffy and more yellowish than the ordinary cultures of the *Achorion Quinckeanum* of mouse favus. Before coming to a conclusion that the culture was a third fungus, he thought it would be advisable to grow it on Sabouraud's medium.

Dr. GRAHAM LITTLE suggested that Dr. Dore should grow the fungus on the recognised proof medium of Sabouraud, and bring another sample of growth under these conditions. He was not persuaded that this was not an atypical form of *Achorion Quinckeanum*, the unfamiliar nature being possibly conditioned

by the medium on which it had been cultivated. In early days, before the general adoption of the proof media, many varieties of the same species had been reported, the variations being subsequently shown to have depended on variations in the medium.

Dr. BUNCH said the cultures shown were, in his opinion, unusual, although he was inclined to think they more closely resembled the *Achorion Schönleini* than the *Achorion Quinckeanum*. He agreed that it would be of interest to see what the culture would be when grown on Sabouraud's medium.

Case of Morphæic Sclerodermia.

By W. KNOWSLEY SIBLEY, M.D.

THE patient was a woman, aged 29. She had been married three years, and had one child aged nearly 2. There was nothing unusual in her family history, and no case of consumption had been known to occur in it. She had had scarlet fever and measles when a child, and was not in good health at the age of 15, when she suffered with patches of baldness. After a time the hair grew again on all the bald patches. For some years she had noticed "white spots" scattered over the upper regions of her chest. Of recent months these had considerably increased, both in numbers and size, many having coalesced to form larger areas. Similar spots had also appeared over her shoulders, sides of the neck, and on the ulnar surface of the forearms.

On examination, the upper regions of the thorax were seen to be studded with a large number of white spots which had the appearance of being small scars, as after an attack of acne. The spots were opaque, white, and glistening in appearance. Over the clavicular regions the skin was generally white and slightly infiltrated. The shoulders presented a somewhat similar appearance, with a marked patch of sclerodermia as large as the palm of the hand, situated in the intra-scapular region, where the skin was much infiltrated and wrinkled. There was a considerable increase of pigmentation in the skin in the neighbourhood of these white patches. White patches similar to lineæ atrophicæ occurred on the sides of the neck over the posterior border of the sternomastoid muscle up to the hairy scalp. Similar lesions occurred over the ulnar surface of the forearms. The lineæ atrophicæ on the sides of the abdomen were not very abundant, and were normal in appearance. There were no lesions present on the thighs or legs.

The patient had some half-dozen small patches of alopecia areata about the scalp, on some of which the hair was re-growing. The eye-balls were possibly somewhat prominent and von Graefe's sign was present. The thyroid was slightly enlarged.

DISCUSSION.

Dr. J. L. BUNCH said he had recently shown a similar case of morphœa guttata before the Section for the Study of Disease in Children in a child aged 12. He had been surprised to find how many French and American authors found it difficult to make a diagnosis between it and lichen atrophicus. No doubt there were, in some cases, resemblances; but in his opinion the differential diagnosis between the two diseases did not, as a rule, present very great difficulties. In both French and American literature considerable stress was laid on a history of tuberculosis in the patient, or his or her parents, but no such history was obtainable in his patient, and he asked Dr. Sibley whether his patient gave any such history. Dr. Bunch asked whether any section had been made, as the microscopical appearances already reported seemed to differ considerably.

Dr. F. PARKES WEBER asked whether members of the Section agreed that in these cases of superficial sclerodermia the tissue over and about the clavicles was one of the most frequent sites to be affected, as he thought it was. He asked whether definitely satisfactory results had been obtained from thyroid treatment in these cases. Thyroid treatment had been largely employed, or rather had been given a trial, in all varieties of sclerodermia, notably in the deep symmetrical diffuse sclerodermia specially affecting the extremities, before the onset of marked atrophic changes.

Dr. GRAHAM LITTLE, in answer to Dr. Parkes Weber, said that he had seen marked improvement with thyroid treatment in a case of extensive patchy sclerodermia, and the patient himself had been so satisfied of the improvement that, notwithstanding that he was obliged to remove to Derby, he continued to come up from that somewhat distant place in order to remain under treatment.

The PRESIDENT said it was undoubtedly very frequent for morphœa to appear first over and above the clavicles. In this case, he thought the association of alopecia areata with typical morphœa suggested the possibility of some endocrinic gland disorder, perhaps of the thyroid; and he drew attention to the presence of a distinct degree of von Graefe's eyelid symptom in the patient on the right side. The most perfect example of guttate sclerodermia he had seen—it was now the fashion to call it "white-spot disease"—was in a girl, whose case he exhibited to the Clinical Society twenty-nine years ago.¹ She had typical Graves's disease, and rapidly developed multiple, tiny,

¹ *Trans. Clin. Soc. Lond.*, 1886, xix, p. 313.

roughly symmetrical spots of morphœa. Three years previously she had had symmetrical alopecia areata. Many other such cases had been recorded in which thyroid gland disorder had been present, associated with morphœa. He had not, however, seen any convincing evidence of the efficacy of thyroid treatment, either of morphœic sclerodermia or of alopecia areata. It was remarkable how seldom these cases of the morphœic type merged into generalised sclerodermia, if they ever did so.

Dr. SEQUEIRA said he showed, some years ago, a lad who had the band form of morphœa, associated with the guttate form of sclerodermia, with herpetiform distribution on one side of the chest. The band on the leg extended from below the trochanter along the line of the sartorius and involved a great part of the leg. The guttate lesions were limited to the anterior half of the intercostal nerve areas.

Dr. PERNET agreed that the clavicular region was frequently an early seat of the condition. He believed he had had some results from administering thyroid extract. In a girl now attending the West London Hospital improvement seemed to have followed thyroid gland treatment; the effects were slow to make their appearance.

Mr. SAMUEL asked if members had noticed the prominence of the eyes, and queried whether the lagging of the eyelid noticed by the President would not be a contra-indication for treatment by thyroid extract. According to a recent article in the *Practitioner*, many cases of exophthalmic goitre developed into athyroidism and then did well on thyroid, and it was stated that in that stage the exophthalmos might still be evident, although the patient was actually suffering from deficient thyroid secretion.

Dr. A. EDDOWES said not only was the clavicular region a common early seat of the condition, but he believed the affection appeared more commonly on the left side than on the right.

Dr. SIBLEY replied that he had not been able to find any history of tubercle in the patient; sections had not been made. The main interest in the case appeared to be one of treatment. His experience of these cases, especially when there was much infiltration of the chest wall, was that they were all improved and often cured with local radiant heat treatment. He had begun that in this case, which was still in an early stage.

Case of Rodent Ulcer.

By E. G. GRAHAM LITTLE, M.D.

PATIENT, a man, aged 71, exhibited a rodent ulcer on the nape of the neck, and his case presented some interesting features. The history was that five years ago a "kernel" had formed on the neck which increased in size without ulcerating, until it must have been as large as a good-sized walnut, and then at the end of four years—i.e., twelve months ago—a portion of the tumour had ulcerated, leaving an intact portion at the upper and inner margin, which remained a typical waxy, mamillated rodent growth as big as a Barcelona nut. The ulcerated portion, in immediate continuity with this, was larger, and also presented the typical aspect of rodent ulcerations, the raised hard ridge surrounding the shallow excavation being particularly noticeable. No enlarged glands could be felt in the neck. A second feature of interest in the case, besides the unusual position, was the fact that there were numerous senile keratomata on the dorsum of both hands, and some on the face as well, and one in the latter position had begun to ulcerate, forming a second very small "rodent ulcer." There was no evidence, however, to show that the large ulcer on the neck had begun in the same way, on the site of a senile keratoma. Yet another feature of interest lay in the man's statement that his father had also had a chronic rodent ulcer of the same type as his own, but that he had lived notwithstanding this to the age of 95. This history and the rather advanced age of the present patient might suggest the propriety of regarding this as not a rodent ulcer but as a squamous-celled epithelioma, for it had been stated that rodent ulcerations with history of inheritance were very seldom seen. The exhibitor did not think the age was an important objection to the diagnosis of rodent ulcer and he had had several cases of probable inheritance. He was in full agreement with the opinion expressed by Bésnier who had said that rodent ulceration might be the terminal form of many varieties of epithelioma, and he held that it was, in fact, a clinical term of great convenience, but did not connote a special cellular type, although, as Fox had pointed out long ago, general experience showed that growths clinically diagnosed as rodent ulcer exhibited singular uniformity in microscopical structure. Norman Walker had been rash enough many years ago to throw a challenge to the surgeons, "to many of whom," he said, "all

slowly growing epitheliomata were rodent ulcers, but that this view was shared by few pathologists"! But if rodent ulcer were essentially a clinical term, and this was all that could, in the exhibitor's opinion, be claimed for it, the two most characteristic differences which alone justified the making of a clinical group apart—and it must be remembered that the large majority of Continental writers did not follow the English school in this separation—were precisely this slow growth, and the absence of glandular invasions. By these criteria, and by the absolutely typical appearance of the lesion itself, this was undoubtedly a case of rodent ulcer. Dubreuilh, who had gone furthest of Continental writers in accepting the English view, attempted to withdraw from the rodent group cases showing senile keratomata and perhaps on these grounds would exclude this patient from that group, but—in the exhibitor's opinion—on insufficient grounds. But no connexion could be established between the rodent ulcer on the neck and the keratomata, although on the face there was a definite commencement of a rodent ulceration on the site of a keratoma. In opposition to Dubreuilh, the exhibitor was of opinion that senile keratomata were frequently associated with the development of perfectly indubitable rodent ulcers.

DISCUSSION.

Dr. ADAMSON said that this patient had undoubtedly multiple warty growths on the face and backs of the hands which were secondary to dermatitis solaris of these parts, but he would hesitate to say whether the large lesion on the back of the neck was one of these warty growths which had taken on a more active proliferation, or whether it was a true rodent ulcer of independent origin. A microscopical section would help. If it were a true rodent ulcer it would be probably a pure basal cell epithelioma; if a proliferated warty growth, it might still be basal cell, but would also contain horny cell-nests. He thought the term "rodent ulcer" should be limited to basal cell growths of embryonic origin and not arising on previously damaged skin. A difficulty arose from the fact that, although the majority of epitheliomata arising on previously damaged skin were squamous cell epithelioma, yet they might occasionally be basal cell and simulate rodent ulcer. They should be kept distinct, because they were ætiologically different and because they were much more likely to involve glands than was the true rodent ulcer of embryonic origin. As to the use of the term "epithelioma," it seemed to him convenient and correct to employ this for any epithelial growth and to preface it by the qualifications "benign" and "malignant."

Dr. MACLEOD said that he considered the case to be one of malignant epithelioma, probably due to the irritation of the actinic rays. He did not

believe that it was a rodent ulcer, by which he understood a locally malignant epithelioma growing chiefly from the basal layer of the epidermis, but thought it more probable that it had developed from the prickle cell layer. He considered that it was better to employ the name "epithelioma" in its full sense to include all the epidermal growths, benign or malignant, and not in the restricted sense in which it was commonly used in this country to signify a malignant growth of the epidermis capable of producing metastases.

Dr. SEQUEIRA said the point raised by Dr. Little was chiefly a question of terminology. The difficulty arose through the lax use of the terms "rodent ulcer" and "epithelioma." The lesion on the patient's neck was a carcinoma of the skin; whether basal-celled or squamous-celled was at present an open question. In some such cases the microscope was necessary to establish a diagnosis. He believed the pure pathologists were desirous of limiting the term "epithelioma" to innocent lesions, and of applying the term "carcinoma" to malignant growths with the adjectives "squamous-celled," or "columnar-celled," or "basal-celled." He had had cases of what Hutchinson called "crateriform ulcer"; forming button-like tumours, breaking down in the centre, and some of them were squamous-celled carcinomata while others were of the basal-celled type. The use of the term "rodent ulcer" was clinically convenient; he took it to mean carcinoma of the skin which did not cause metastasis, and ran a slow course. He would include in it a number of growths which started in the glandular elements of the skin.

Mr. McDONAGH said that an epithelioma simply meant an abnormal growth of epithelium. The abnormal growth could be caused by inflammation or by a new growth. If the latter, then the prefixes should be added, so as to state whether the growth was benign or malignant. An inflammatory epithelioma could become a malignant epithelioma, but the diagnosis of the supervention of the latter should not rest upon whether the cells invaded healthy tissue or not, but upon whether they showed nuclear and nucleolar activity. It was best to divide up the new growths according to the layer of epithelium from which the growth arose. A tumour arising from the basal cell layer was a rodent ulcer and the most embryonic. A tumour arising from a layer or two above or from cells, which were destined to develop into one or other of the appendages, was less embryonic and formed what were called multiple rodent ulcer and epithelioma adenoides cysticum. A tumour arising from the middle layers of the rete Malpighii, or from one of the appendages, was what might be called a tumour of mature cell origin. Such tumours constituted the papillomata, tricho-epitheliomata, sebaceous adenomata and syringomata. In the speaker's opinion, a tumour arising from embryonic cells never became malignant, in the sense that it formed lymphatic gland enlargement and metastases. It never developed nuclear and nucleolar activity, therefore such a tumour was best described as merely exhibiting embryonic activity. Nuclear and nucleolar activity, or pseudo-parasitism, only appeared to involve mature cells, and when cells had passed their zenith and commenced

their decline their power of becoming malignant also declined. For instance, a so-called malignant epithelioma in which there were several cell-nests was less malignant than an epithelioma in which there were no cell-nests. The presence of cell-nests meant that layers approximating the stratum corneum had been attacked, and cells which formed horny tissue were partially degenerated.

Postscript.—Since this patient was exhibited another very similar case had been admitted to St. Mary's Hospital by Dr. Little's colleague, Mr. Cope, who kindly allowed him to see it. The patient was a man, aged 59, a greengrocer, living in London, and at the present time he had a large rodent ulceration, about 2 in. by 1 in. in extent, situated on the nape of the neck, somewhat to the left of the midline, in fact about half-way between the midline and the left ear. This began as a pimple twelve months ago, and ulcerated within a few weeks, and slowly increased in size to its present dimensions. He was treated with ointments. The ulceration was typical rodent, with the raised hard edge very marked, and very superficial ulceration. No enlarged glands could be found in the neck. On the dorsum of the hands and on the face there were a few patches of senile pigmentation, but without warty growth upon them. The whole growth had since been excised, and a careful search for enlarged glands in the triangles of the neck proved negative. A microscopical report of both of these cases would be submitted to a later meeting of the Section.

Case of Parakeratosis Variegata.

By H. W. BARBER, M.D.

Mrs. H., aged 38, married, with two children, a shopkeeper. She stated that she had had nothing the matter with her skin until last summer. At that time, she thought towards the end of June, some red, somewhat scaly patches appeared on her legs. They were intensely irritable, and she scratched them a good deal. In August she went to the country, where her legs got very much better. In September she returned to town, and then her face, neck and arms became involved as well as her legs. She consulted her doctor, who treated her with ointment and medicine, and she said that the eruption seemed to be clearing from her neck, forehead, arms and the backs of her legs. In summer she perspired a great deal, and her skin was always worse and

more irritable when she got hot. Her general health was good, except that she was liable to fits of depression.

Description of the eruption: On the cheeks the eruption assumed the form of a diffuse, reddish-brown coloration, suggesting the combination of an erythema with increased pigmentation. Here and there were scattered small, oval, white areas. On the forehead the erythematous element had partially disappeared, leaving irregular areas of pigmentation having a somewhat reticular arrangement. On the neck the appearance suggested *parakeratosis variegata*, this retiform arrangement being well marked. On the front of the legs were large slightly raised erythematous patches, while on the calves the reticular appearance was again seen, associated with considerable pigmentation. The rash was also present to a slight degree in the antecubital fossæ. The scalp was scurfy and the hair dry.

The exhibitor had shown the case as one for diagnosis. The only suggestion he could himself make was that it was a mixed and unusual case of Brocq's parapsoriasis. The lesions on the neck, backs of the legs, and antecubital fossæ suggested the retiform variety of that disease, while those on the front of the legs might represent parapsoriasis en plaques. According to the patient's own statement the condition of her neck and forehead had been formerly exactly the same as the present condition of her face, and in the same way the retiform appearance on the backs of the legs had succeeded a condition resembling that now seen on her shins. If his suggestion as to diagnosis was correct, then the marked involvement of the face, the severe itching and the marked pigmentation, would in his own limited experience of the disease be exceptional features. He wished to acknowledge his indebtedness to Sir Cooper Perry and Dr. Sturdy, who had kindly permitted him to show the case.

DISCUSSION:

Dr. MACLEOD agreed with the diagnosis of parapsoriasis and drew attention to the similarity in the type of the lesions and arrangement of those situated about the root of the neck to the case exhibited and reported by Dr. Colcott Fox and himself,¹ under the heading of "*Parakeratosis Variegata*." This case, which had been under observation for a considerable period, had proved completely resistant to all forms of local and general treatment which had been tried.

¹ *Brit. Journ. Derm.*, 1901, xiii, p. 319.

The PRESIDENT said he agreed with Dr. Barber that the case was one of "parakeratosis variegata," as the reticulated appearance and ribbonry, band-like lesions on the neck were rather characteristic of that condition. He well remembered the first three cases of the disease brought to the old Dermatological Society of London many years ago, and their being called "lichen dubius" by Dr. Payne and Dr. Cavafy in nomenclatural dilemma. After the publication of Unna's, Santi's, and Pollitzer's observations in 1890 their name of "parakeratosis variegata" had been generally adopted until the disease was claimed to be a form of the rather inchoate condition called "parapsoriasis." As a clinical term, he had always rather favoured Crocker's term "lichen variegatus." Itching was certainly a prominent symptom in some cases. He had now a case under observation which was rapidly going from bad to worse, and he knew of nothing which mitigated the severity of the disease in any way.

Mr. SAMUEL called attention to the classical description of parapsoriasis of Brocq as to the total absence of subjective symptoms; but nearly all the cases he had seen had had itching. A patient whom he had placed under the care of Dr. Gray for some time complained of intense pruritus, and that was the only complaint which induced the patient to seek treatment. In that case the quartz lamp had been employed for some time, and the patient was doing remarkably well as regards the pruritus, all other methods of treatment having failed to give relief.

Case of Dermatitis Artefacta.

By J. M. H. MACLEOD, M.D.

THE patient was a neurotic girl, aged 18, employed by a firm of lithographers. The part affected was the dorsum of the right hand, the dermatitis extending for some distance on to the fingers and up to the wrist. The lesions consisted of bullæ which were round or oval in shape and varied in size from a sixpence to a shilling, and which, on drying up, left scabs and clean-cut ulcerations which, on healing, were replaced by superficial scars. The whole of the affected area was covered with these lesions in different stages of evolution. The patient had been operated on at Charing Cross Hospital four weeks ago for a ganglion on the right hand which had been excised; some dermatitis had followed the healing of the excision wound; about a fortnight later the blebs began to appear and she was transferred to the Skin Department. The character of the lesions at once suggested an artefact, and the appearance of fresh lesions beyond the limits of an occlusive dressing and the healing of those beneath it corroborated the opinion.

The agent employed in the production of the lesions was uncertain, but it was probably some powerful caustic. The possibility of its being bichromate of potash, which was used in cleaning lithographic plates, was considered.

DISCUSSION.

Mr. SAMUEL asked whether it was not a fact that the skin of hysterics was more susceptible than the normal skin.

The PRESIDENT said there appeared sometimes to be "epidemics" of the psychical condition which led to the simultaneous production of cases of dermatitis ficta in considerable numbers. He had seen such pranks played by several members of one family; and in one case under his care in hospital the materials used for producing the lesions (small fly blisters) were actually supplied by the parents, who were nevertheless greatly indignant at his diagnosis when it was explained to them.

Lichen Planus of Unusual Chronicity.

By J. H. SEQUEIRA, M.D.

W. T., AGED 42, a carpenter, came to the London Hospital on February 9, 1915, on account of an eruption upon his legs. He had had small-pox thirteen years ago, but in other respects his health had been good. Twenty-five years ago an eruption of spots appeared on the front of both legs. The affected parts itched, especially at night, and occasionally, if knocked, an area has broken down to form an ulcer. The eruption consisted of a number of shiny, flat-topped, raised areas, varying in size from a millet seed to patches $\frac{1}{2}$ in. long by $\frac{1}{3}$ in. across. The small lesions were characteristic of lichen planus in their colour, their burnished surface and shape. The larger areas were evidently caused by fusion of the elementary lesions. These were raised above the surrounding skin about one line, and had a lilac-tinted surface. Some spots were covered with horny scales, but the majority were smooth. The areas involved were the anterior and the antero-internal surfaces of both legs. The thighs, arms and body were free. The buccal mucosa was also unaffected. The treatment carried out during the twenty-five years had been the application of ointments and lotions.

The case was shown on account of its unusual duration; and, in view of the difficulty he had himself experienced in the treatment of similar cases, the exhibitor invited suggestions from members of the Section.

DISCUSSION.

Dr. GRAHAM LITTLE agreed that treatment of these conditions by X-rays was usually very unsatisfactory, but he had had considerable success with freezing. In the most hypertrophic case of lichen planus which he had ever seen, and which he had shown to the Section, the patient, a woman of middle age, had warty growths as big as the distal phalanx of a man's thumb, about twelve of these being situated on the right leg. The growths had been carefully pared with a very sharp razor until sensations of pain began to be felt, and then the surfaces treated with carbon dioxide snow. All the growths had in this way been reduced till they were flush with the surrounding skin, and a very good flat scar resulted. The process had occupied about six weeks, the number of lesions to be treated preventing the application of the "snow" to all at a single sitting.

Dr. ADAMSON said that lichen planus hypertrophicus was generally very intractable. In his experience X-rays had not given good results in spite of full doses frequently repeated. Other treatments he had employed without success were: application of salicylic acid plaster, protection by plasters or bandaging, mild cauterisation with trichloroacetic acid, and freezing with carbon dioxide snow. But he had not used the snow after shaving off the growth as Dr. Little recommended. He had lately had good results from nitrate of silver stick dipped into water and rubbed on to the patch. Hypertrophic lichen planus was not infrequently associated with varicose veins, and in that case supporting bandages helped to remove the skin eruption.

Dr. DOUGLAS HEATH said the application of X-rays stopped itching, and he was in the habit of applying strong elastic pressure afterwards. In hypertrophic eczemas strong elastic pressure led to much shrinkage of the lesions.

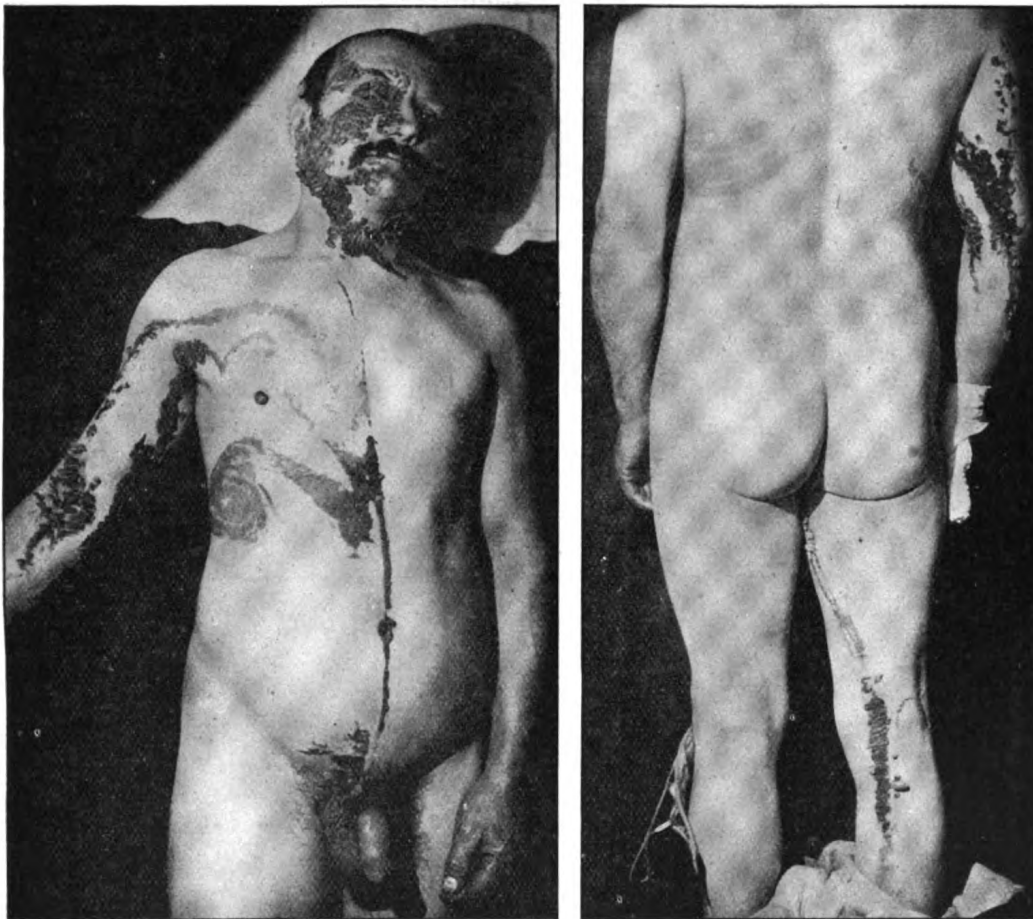
Dr. CORBETT suggested ionisation followed immediately afterwards by X-rays. The combination had been successful in cases of warts which had resisted treatment with either agent separately. The ionisation apparently acted by causing a local hyperæmia, rendering the tissues more sensitive to the X-rays.

Dr. DORE agreed that such cases did not yield readily to X-rays, but he had had two cases in which that treatment had been successful.

Case of Nævus Linearis.

By DUDLEY CORBETT, M.D.

THE case was of interest on account of the extensive distribution of the nævus growth on the face and neck, and its linear configuration on



Case of nævus linearis.

the trunk and limbs, especially the vertical line extending almost exactly in the midline from the claviculo-sternal junction to the symphysis pubis. Thence it was directly continuous down the back of the right thigh and knee, following the ventral axial line in that limb.

The PRESIDENT asked if there was any history of other members of the family being similarly affected, and referred to the well-known Lambert family in which the disease existed in male members of the family throughout at least four successive generations.¹

Case of Tertiary Syphilis.

By GEORGE PERNET, M.D.

A WOMAN, aged 57, with extensive tertiary gummatous infiltration, ulceration, and scarring of the skin of the right leg, which had commenced some fifteen years previously, starting about the part above the right external malleolus. There were also similar lesions about the upper part of the chest and the root of the neck. The interest of the case lay in the fact that the patient had never had any treatment, but for the last fifteen years had merely applied boracic ointment. The patient was a widow who had had ten children and no miscarriages. The husband appeared to have died from general paralysis of the insane.

¹ See article "Ichthyosis Hystrix" in Allbutt and Rolleston's "System of Medicine," 1911, ix, p. 23.

Dermatological Section.

March 18, 1915.

Dr. J. J. PRINGLE, President of the Section, in the Chair.

Two Cases of Alopecia in Children due to Over-doses of X-rays.

By J. H. STOWERS, M.D.

THE patients exhibited were two male patients, brothers, aged 11 and 4 respectively, who had been subjected to X-ray treatment for tinea tonsurans by an electrician holding no medical qualification. Pastilles were used, and the exposures were stated not to have exceeded an hour, but dermatitis followed. Although five and a half months had elapsed since the treatment, considerable bald areas remained upon the scalp of each child, which, in the exhibitor's opinion, were likely to be permanent.

The cases were instructive as indicating the extreme importance of guarding against excessive exposure, and especially when it was remembered that the scalps of some children were less tolerant of the effects of X-rays than others, this constituting one of the difficulties of dermatological practice.

The cases were sent by a medical practitioner to Dr. Gray for an opinion and, in his absence, were seen by Dr. Stowers.

DISCUSSION.

Dr. DUDLEY CORBETT said the amount of damage varied in different regions of the scalp in both cases. In the more shiny parts he did not expect any re-growth; but such was possible where the scalp was less damaged and more freely movable over the underlying tissues. He had treated two or three such cases by means of the mercury vapour lamp and there was certainly

some improvement in the texture of the areas of scar tissue, and some re-growth of hair over the less damaged areas. These accidents, he thought, were partly due to the employment of soft tubes.

Dr. SIBLEY thought it was too soon yet to give a positive opinion as to the likelihood of re-growth of hair. He had seen alopecia persist for many months after the application of X-rays, and then re-growth occur. In those parts where there was cicatricial tissue he did not think there would be re-growth, but in other areas it might take place. He recently had a case at the hospital of alopecia following ringworm two years previously. No X-rays had been applied in that case, and he remarked that if X-rays had happened to have been used on that head all the delay in re-growth would have been attributed to that agent. In one of the cases shown there was scarring and telangiectasis, which rendered recovery improbable; but the hair might reappear on the other areas.

Dr. G. PERNET said he saw not long ago a case in which X-rays had been applied and alopecia persisted for a considerable time, but eventually there was re-growth. There was not any shininess of the scalp, however. He agreed that the outlook in the present cases, as far as the shiny cicatricial areas were concerned, was bad; but the other areas might recover to some extent. He advised a stimulating lotion.

Cotton-seed Dermatitis.

By J. A. NIXON, M.B.

WORKERS in certain kinds of grain were known to be liable to an eruption which was believed to be caused by a "mite" called *Pediculoides ventricosus*. Barley appeared to be the particular grain which harboured this insect, so much so that the disease was commonly called "barley itch." The exhibitor had recently seen a similar complaint attacking workers in cotton seed. In January, 1915, he was consulted in reference to an outbreak of an irritable rash amongst some of the dock labourers in Bristol. The only labourers affected were said to be engaged in unloading a cargo of cotton seed consigned from Alexandria to Bristol. After several unsuccessful attempts he was fortunate in seeing a man whose eruption had only just appeared and which still remained unaltered by scratching and secondary infection.

T. T., a healthy dock labourer, aged 42, had enjoyed good health all his life, and had only drawn six weeks' sick pay from his club in fourteen years. He was not liable to food rashes and presented no

sign of scabies or body-lice. His history of the present condition was that three days before seeing the exhibitor he had been at work unloading a cargo of cotton seed (in bulk) from Alexandria. Within a short time of starting work on the cotton seed the patient began to feel some irritation about the neck and arms. This irritation increased and became most severe during the following night when he got warm in bed. At first no rash could be seen, but towards evening a series of red spots, about the size of mosquito bites, appeared at the site of the irritation. Some of the spots developed "blisters" upon them which burst and discharged a watery fluid. He had previously had similar attacks, the first occurring some four or five years ago, but the present attack was the worst he had suffered from. The patient stated that he had developed a somewhat similar eruption from working in "itchy" barley.

The rash died out in a week if not renewed by continued work in the "cotton seed," or unless it was "scratched and poisoned," when a "sort of eczema set in." The rash did not appear on the covered parts of the body. The spots were not transient or recrudescient. There must be actual contact with the seed before the itching started; mere entrance into the place where the seed was stored did not cause any itching. It was only certain cargoes of cotton seed which were "itchy"; the men thought that the "itchy" cargoes were those which came from Alexandria; there had been no complaints with those from Smyrna. But cotton seed if in bags did not seem harmful; it was only when handling cotton-seed cargoes "in bulk" that the "itch" occurred. Of fifty men working on this cargo about two-thirds had been attacked.

The eruption consisted of sparsely distributed isolated urticarial papules situated chiefly on the neck and forearms with a few papules on the legs. Each papule was pinkish-red in colour, hard, raised, and about the size of a pea. In its general appearance the rash resembled a moderately severe attack of lichen urticatus in a child. There were no burrows of the *Acarus scabiei* to be seen.

A microscopical examination of the cotton seed showed that the dust was infested with a living parasite closely resembling if not identical with *Pediculoides ventricosus* as described in Stelwagon's "Diseases of the Skin," and in Dr. Shipley's articles on "Insects and War" in the *British Medical Journal*.¹ *Pediculoides ventricosus* was held to be the cause of "barley itch," and Dr. Nixon thought it would

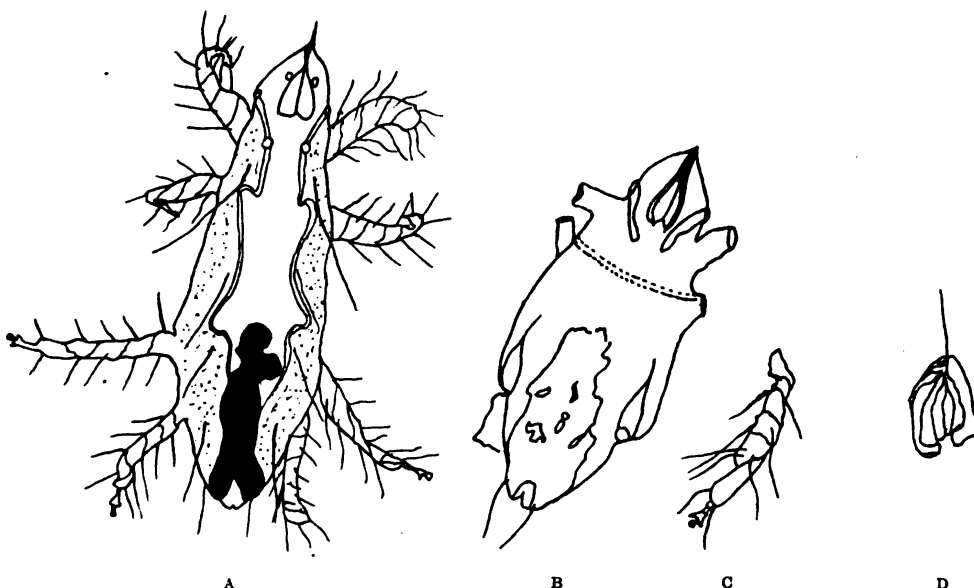
¹ *Brit. Med. Journ.*, 1914, ii, p. 751.

be proved that the parasite exhibited that evening, and at present unidentified, was the cause of the papular urticarial eruption described under the name of "cotton-seed dermatitis."

Dr. W. D. Henderson, Lecturer in charge of the Department of Zoology at the University of Bristol, thought that the "mite" found in the cotton seed submitted for examination seemed to be very closely allied to the *Pediculoides ventriculosus*, but he very much doubted if it was identical with it. His report ran as follows: "The animal is elongated and flattened dorso-ventrally, with an average length of 0.165 mm. and an average breadth of 0.068 mm. It is sharply pointed at the anterior end and more rounded at the posterior end, and has four pairs of walking legs. The cephalothorax is marked off from the abdomen by a slight groove, and increases in size from before backwards. The two anterior pairs of walking legs rise at some little distance apart, but the two posterior pairs, which rise close together, are at a considerable distance from the anterior pairs. The first pair of walking legs differ slightly from the posterior pairs in the distal joint. The three posterior pairs of legs are apparently seven-jointed, and the tarsus is markedly more slender than the other joints and has its terminal portion in the shape of a small cone-like structure. About half-way up the tarsal joint there is a pair of peculiar lateral outgrowths which gives the tarsus a †-shaped appearance. Each of the joints of the leg seems to carry only a pair of stiff hair-like bristles. The first pair of walking legs differ in the following way from the others: the terminal joint does not end in that peculiar cone-like structure, nor has it the lateral outgrowths; it ends in a claw-like structure. The penultimate joint also carries a larger number of hairs than any of the proximal joints, and certainly a larger number than any of the joints of the other three pairs of legs. The chelicerae are apparently reduced to stylet-like structures which are capable of protrusion. The pedipalps are also greatly modified and partially fused with the maxillary plate, but they terminate in a hard claw-like lip. There are two well-marked tracheae which are arranged near the lateral margins. Near the anterior end, close behind the base of the pedipalps, rising near the basal joint of the anterior pair of walking legs and running obliquely forwards till they reach the exterior, there is a pair of peculiar channel-like structures which may be only a modified portion of the tracheal system or may be the pseudo-stigmatic organs. With reference to the internal structure, I should not like to give any definite details, as all the specimens were dead when they reached me. Another point which I

am still very doubtful about, is the exact number of hairs borne on the body. As far as I can judge at present there seem to be from three to five pairs. The males are much shorter and broader, but there was not any very good specimen, so the description must wait till more fresh material is procurable."

Dr. Shipley has kindly submitted a specimen to Mr. C. Warburton, who writes of it thus: "I think Dr. Nixon may have got the culprit. It is so excessively small that unless alive it would be very hard to find. His mite is one of the Tarsonemidæ. Banks¹ quotes Karpelles as



A, dorsal aspect; B, majority of specimens found in this condition; C, one of the posterior walking legs; D, anterior end of mite showing a stylet-like projection.

saying of a mite of the same group infesting barley in Russia, 'The men had been handling barley and the mites spread from this to the hands, when they caused an irritating inflammation of the skin so intense as to force the men to leave their work.'"

¹ "Treatise on the Acarina," p. 77.

Acarus from a Case of Copra Itch.

By A. WHITFIELD, M.D.

DR. WHITFIELD showed an acarus from a case of "copra itch." He said that he was sorry that he was unable to show the patient, but the disease disappeared very rapidly under treatment. He was not previously aware that the disease occurred in London, and he had been surprised that cases had not been shown by those in charge of the Dermatological Departments at either the London or Guy's Hospital, as their practice would naturally bring them more into contact with dock labourers than those farther west.

The patient in his case was a stevedore, who had had two attacks. The rash was generalised all over the trunk and extremities, but did not affect the face. It was very much like that described by Dr. Nixon, and consisted of numerous single and grouped follicular papules, so that at a casual glance it looked like seborrhœic eczema. By the kindness of Dr. Corner he had been able to obtain some of the copra. The acarus was not found all over the surface of it, but there were small eroded cavities in the pulp in which the acarus was to be found, and which were evidently eaten out by the acarus. It was difficult to mount a very satisfactory specimen as the material was so greasy, and the acarus was very delicate. Eventually under a low power he had been able to isolate the specimen shown, but in doing so he had broken off a leg or two. He had not found the disease described in any text-book that he had referred to for it.¹

DISCUSSION.

Dr. GRAHAM LITTLE pointed out that Castellani had described in detail² a very similar if not identical acarus in copra, which was responsible for eruptions in workers in that material, and the entomology of the parasite had been successfully established.

¹ *Postscript by Dr. Whitfield.*—Subsequent to the meeting, at the suggestion made by Dr. Little at the meeting, he had consulted Castellani's book and found an accurate description of the disease, and figures of the parasite. The latter was evidently identical with that shown by Dr. Whitfield, and was classified by Castellani as *Tyroglyphus longior* Gervais, var. Castellani.

² *Brit. Journ. Derm.*, 1913, xxv, p. 20.

Dr. J. M. H. MACLEOD said that he had seen a case of copra dermatitis at Charing Cross Hospital about a month ago in a man who was unloading copra which he said was much decomposed, and, when turned over, emitted a cloud of fine dust. On the face there was an acute erythematous condition, with swelling of the eyelids, while on the hands and arms there was a papulo-vesicular dermatitis, the lesions being irregularly distributed, some discrete, others clustered or aggregated into crusted patches. (A note on the case had been sent to the *British Journal of Dermatology* previous to the meeting.) Referring to Dr. Nixon's case, Dr. MacLeod said that about eighteen months ago a number of cases of dermatitis had occurred in men unloading a cargo of cotton seed at the London Docks. The outbreak was investigated by his colleague, Colonel Alcock, of the London School of Tropical Medicine. The dermatitis somewhat suggested the lesions of lichen urticatus. An examination of the cotton seed revealed numerous small caterpillars of the cotton moth (*Gelechia gossypiella*). Living on these caterpillars were small mites, which Colonel Alcock recognised as the *Pediculoides ventriculosus*, the parasite of grain-itch, and he considered that the dermatitis was due to this mite. He believed that its presence on the cotton seed was contingent on the presence of the caterpillars on which it was a parasite.

Case of Severe "Blood Mixture" Eruption in a Patient with Primary Syphilis.

By GEORGE PERNET, M.D.

THE patient was an ill-nourished man, aged 40, who first attended at the West London Hospital on February 12, 1915, for a severe characteristic iodide eruption of the face mainly. The lesions were large and raised, mixed up with smaller typical ones. When asked if he had taken any "blood mixture," the patient admitted he had taken two bottles of Clarke's Blood Mixture for some spots he had on the face. According to Martindale's "Extra Pharmacopœia," this nostrum contains 52·5 gr. of iodide of potassium to 8 oz., so he had taken some 100 gr. of the drug. On examining the patient, a primary syphilitic sore of the end of the prepuce, giving rise to a phimosis, was discovered. Numerous *Treponemata pallida* were found on examination of the sore. The Wassermann reaction was positive (Dr. Elworthy, Pathologist to the West London Hospital). The patient was warned to take no more blood mixtures. Neo-salvarsan 0·4 was ordered, and circumcision recommended to start with, but the patient did not present himself

again till March 2. On March 3 the neo-salvarsan was administered. There was nothing wrong with the urine. Now the iodide lesions had flattened down considerably, leaving marked pigmentation, a common event in such cases, apart from arsenic. The neo-salvarsan had probably acted beneficially on the drug rash.

DISCUSSION.

Dr. A. WHITFIELD said he did not doubt the condition was an iodide rash, because the nodules on the face were very large ones. Syphilitic nodules of that size would have left marked atrophy, whereas iodides, unless the rash was very suppurative, left extraordinarily little change in the skin.

Dr. F. PARKES WEBER asked whether it was usual for iodides, apart from syphilis, to cause such a degree of purpuric erythema and pigmentation. He suggested that the peculiar eruption in this case was partly due to secondary syphilis.

The PRESIDENT said it was remarkable that such cases were not more frequently seen, as the sale of Clarke's Blood Mixture was very large. He did not doubt that the rash on the face was due to an iodide; the deep pigmentation was peculiarly characteristic of such an eruption, during its involution.

Dr. A. EDDOWES said if the patient had had arsenical preparations the pigmentation might have come about in that way. He had seen a case of acute secondary syphilis mistaken for psoriasis, and arsenic had been given in the usual routine way by a practitioner. The result was that every lesion became deeply pigmented, and it took a long time for the colour to disappear. It also set up acute paronychia and aggravated the eruption.

Dr. PERNET, in reply, said that the man had not, when seen, taken any other medicine than Clarke's Blood Mixture. He had 0.4 of neo-salvarsan on March 3, but the pigmentation was then established. The urine was normal.

Case of Erythema Induratum of Bazin.

By GEORGE PERNET, M.D.

THE patient was a small, overworked girl, aged 15, who attended the West London Hospital. She began five weeks previously to suffer from aching in the legs. When first seen there was a typical erythematous, indurated condition of both calves, which could still be felt.

The condition, however, had much improved, the patient having been put on to less laborious work with opportunities of rest, and she had been taking syr. ferri iodidi since first seen on January 22. There was no history of phthisis and no chilblains, but the circulation was below par, exhibiting itself in an erythema marmoratum of the front of legs and bluish hands.

DISCUSSION.

The PRESIDENT said the case was a very characteristic example of a familiar condition. He exhibited the first typical case he had seen in a girl, aged 14, to the Dermatological Society of London in January, 1890 (before its Proceedings were published), and again in January, 1895,¹ when the lesions had ulcerated. Although the nature of the disease was even then quite clearly recognised by dermatologists, his surgical colleagues refused to accept any diagnosis other than that of syphilis. The classical papers on the subject by Hutchinson² and Colcott Fox³ among British observers, were doubtless well known to all members of the Section, and had popularised expert knowledge of the subject among the profession, by whom it was now almost universally recognised.

Dr. GRAHAM LITTLE said he had at St. Mary's Hospital at present a very similar case, also in a young girl, aged 14, with more numerous lesions, scattered over the front and back of the lower third of the legs. The induration area had materially diminished as a result of rest in bed. This patient had given a marked reaction to a test inoculation of tuberculin, for after the injection of $\frac{1}{2}$ c.c. of old tuberculin the temperature had risen to 103° F.

Case for Diagnosis (? a Tuberculide).

By W. KNOWSLEY SIBLEY, M.D.

THE patient was an unmarried servant girl, aged 18, whose parents were living and well. She was the fourth of the family, and had three brothers and four sisters, all of whom were healthy. There was no history of consumption in the family. The disease commenced on the upper lip two years ago, and was stated to have followed a cold, with discharge from the nostrils, after an operation for adenoids. Small dull

¹ *Brit. Journ. Derm.*, 1895, vii, p. 28.

² *Arch. of Surg.*, 1895, vi, p. 8.

³ *Brit. Journ. Derm.*, 1893, v, p. 225.

red papules first appeared on the upper lip; these after a time slowly spread towards the cheeks, and afterwards appeared on the tip of the nose. For some months they had remained more or less stationary, and had never suppurated or broken down and ulcerated.

On examination, there was some slight seborrhœa capitis, and a few small comedones on the face. The papules were very hard to the touch, markedly raised, and were arranged singly and in groups, being especially abundant on the upper lip, and irregularly symmetrical on the cheeks, and on the tip of the nose and the free margin of the alæ nasi. They were very prominent and superficial, of a dull red colour, with a yellowish glistening surface, and varied in size from a pin's head to a small pea. Under pressure with a glass they revealed greyish-yellow foci. Many of the older ones showed a distinct puckering with a tendency to a central depression and a dilatation of the superficial blood-vessels, with some slight scaling on the surface. A few had disappeared and left small atrophic scars. The whole upper lip was slightly thickened, and there was some excoriation and fissuring of the vermillion. The glands of the neck were slightly enlarged. The von Pirquet reaction was negative on three occasions.

The patient now had an acute attack of lymphangitis of the face. She stated she had previously had a similar attack.

The blood-count was as follows: Red blood cells, 4,800,000 per cubic millimetre; white blood cells, 5,200 per cubic millimetre. (There were no abnormal red blood cells.) Differential leucocyte count as follows: Polymorphonuclear cells, 61·5 per cent.; lymphocytes—large, 7·5 per cent., small, 29·5 per cent.; eosinophiles, 1 per cent.; basophiles, 0·5 per cent. The count showed a lymphocytosis, and a slight diminution in the polymorphonuclear leucocytes.

Section of small nodule taken from the face: The epidermis was practically normal, except over the diseased area, where it was very thin and flattened out. In the dermis there was a nodule, which was composed of badly stained endothelial cells, separated by bands of fibrous tissue; there were also a few giant cells present. The whole nodule was more or less surrounded by fibrous tissue. The upper portion of the dermis outside the nodule was infiltrated chiefly with lymphocytes. There were no plasma cells nor mast cells to be seen. The vessels showed a marked dilatation.

DISCUSSION.

Dr. ADAMSON thought the clinical and microscopical appearances were those of a typical lupus vulgaris. The case was a severe form of that type in which there appeared rather suddenly a shower of "apple-jelly" nodules on the skin of the nose and adjacent part of the cheeks, and in which the prognosis was usually very unfavourable. He regarded the swelling of the cheeks and eyelids as due to a secondary streptococcal infection.

Dr. WHITFIELD agreed with Dr. Adamson that this was true lupus, with probably streptococcal lymphangitis. He had a figure of such a case in his book; the patient also had recurrent erysipelas and scattered nodules. His opinion was that the streptococcal lymphangitis spread the disease a little each time it occurred. The scattered type was very apt to be secondary to a primary focus elsewhere, and it would be interesting to know what was the condition inside the nasal cavity. The section seemed to be typical lupus, though he did not know that one could swear to tubercle on microscopical examination only. There were ill-formed giant cells, and, what was characteristic of tuberculosis, commencing degeneration. He considered this case belonged to the endothelial type of lupus.

Dr. DORE asked whether Dr. Sibley had examined the gums, as he thought they were affected with characteristic lupus vulgaris.

Mr. McDONAGH said he considered the case was one of lupus vulgaris—that was to say, a case in which the bacilli themselves were present, in contradistinction to a lesion caused by their toxins. The microscopical section he saw, which the exhibitor had sent to him for an opinion a few weeks previously, was doubtless external to a papule, as it did not show the characteristics of either tuberculous or any other inflammation. One could only say from the section examined that it was from a case of chronic inflammation.

Dr. DOUGLAS HEATH said that while agreeing that this condition was tuberculous, he dissented from the view that it was common to see such superficially set lupus. He agreed that a nodular condition was met with, particularly in lupus of the nose, but in the present case the nodules were more superficial than usual.

Case for Diagnosis.

By S. E. DORE, M.D., and S. A. KINNIER WILSON, M.D.

DR. DORE said that the patient, a man, aged 54, was sent to his department at Westminster Hospital, suffering from pain and swelling of the fingers and toes with changes in the nails; and as there was not much to found a diagnosis upon from a dermatological standpoint he asked his colleague, Dr. Kinnier Wilson, to see him. The latter found the patient had well-marked thermo-anæsthesia of the toes, feet, and half-way up the legs, and suggested the diagnosis of lepra. The patient's history was as follows: He was born in Kent of healthy parents. In the year 1888 he visited South Africa on two occasions, spending about fifteen months there altogether. From 1889 to 1893 he was employed as a steward in the P. and O. Steamship Company, and travelled to and from India, staying about three weeks on shore, usually at Calcutta or Bombay, at each visit. His symptoms dated from eighteen months ago, when he noticed a swelling under the nail of his left index-finger which he attributed to pressing down hot tobacco in his pipe. About the same time the nail of the middle finger became affected and both fingers were swollen and painful, especially during cold weather. Two months later he complained of "itching down the spine," followed by similar symptoms in the toes, and blisters appeared between the latter. By slow degrees all the finger nails of both hands became affected with longitudinal splitting of the nail substance, the fingers themselves being blue, tender and œdematous, with marked thickening and roughening of the skin over the first phalangeal joints and great sensitiveness to cold. The toes were affected in a similar manner but to a less degree, and there was some patchy pigmentation of the shins attributed to slight injuries. The patient had also suffered from pain in the chest and back and left shoulder. The result of the Wassermann test had not yet been obtained, but the exhibitor thought that a positive reaction would be a strong point in favour of lepra as against syringomyelia. Unfortunately, Dr. Kinnier Wilson was unable to be present and a complete account of the nervous symptoms was therefore not forthcoming.

DISCUSSION.

The PRESIDENT said the evidence in favour of the diagnosis of leprosy appeared to him rather scanty. He had seen an identical condition of finger-nails in a case which his neurological colleagues diagnosed as syringomyelia. But he was quite open to conviction.

Dr. WHITFIELD said that if the Wassermann test was positive, it was an important point. He thought the man should be given a tuberculin injection, because if that proved positive also, the case was very likely one of lepra in the absence of obvious signs of tubercle. He had asked the patient if he had had burning, and he said he had a sensation in his fingers as if he had plunged his hand into a bed of nettles. That gave an extraordinarily good representation of the sensation experienced in lepra; he did not know whether it occurred also in syringomyelia.

Dr. F. PARKES WEBER thought the only alternative to the diagnosis of anæsthetic leprosy would be "Morvan's type of syringomyelia." Working in Brittany, in 1883, Morvan described a trophic disorder of the extremities associated with the formation of painless whitlows and areas of analgesia. When he (Dr. Weber) was attending Charcot's demonstrations in Paris, it had been definitely agreed that the so-called "Morvan's disease" was to be called "the Morvan type of syringomyelia." This had been settled by Charcot, Marinesco, Jeanselme, and others, in spite of Zambaco's suggestion that Morvan's cases were sporadic examples of attenuated leprosy occurring in Europe. In one or two of Morvan's original cases in which a post-mortem examination had been made no evidence of leprosy had been found. In the present case the fingers did not seem to be sufficiently bulbous to accord with the typical "Morvan type of syringomyelia." Moreover, the patient had never had "painless whitlows" such as Morvan described. His ulnar nerves at the elbows were perhaps slightly thickened, as in some cases of leprosy.

Dr. PERNET thought the case sufficiently important to ask for it to be brought forward again, when perhaps Dr. Kinnier Wilson could be present.

Case of Lichen Scrofulosorum in an Adult.

By H. G. ADAMSON, M.D.

THE patient was a male, aged 18, who had also lupus vulgaris of the nose and caries of the spine. The case was shown as a striking example of this well-known tuberculide. The lesions consisted of oval patches made up of groups of red-brown follicular papules of the size of a large pin's head. There were four patches on the abdomen and two on the back, each measuring about 1 in. by $\frac{1}{2}$ in., and made up of some fifteen to twenty papules.

DISCUSSION.

The PRESIDENT did not think that the case could be considered as "ordinary," examples of lichen scrofulosorum being, in his experience, seldom seen in persons of adult age. It was certainly an eruption which would escape the diagnostic power of many persons but for the concomitant conditions of lupus and spinal caries. He remembered an excellent description of the condition in the works of Hebra, who described large papules in comparatively extensive circles, contrasting with the much more finely patterned lichen scrofulosorum of young children.

Dr. ADAMSON replied that he did not think in his experience that lichen scrofulosorum was more common in children than in adults; and cases as pronounced as that now shown were, he thought, more often seen after puberty.

Case of Macular Atrophy following a Secondary Syphilitic Eruption.

By H. G. ADAMSON, M.D.

THE patient, A. C., was a man, aged 38, who had contracted syphilis six years ago, and in whom the secondary eruption had been followed by the present atrophic macules. He had first noticed the atrophic patches some ten or twelve months after the disappearance of the eruption, and no direct transition of the papules into atrophic patches could be proved in this particular case. There were now altogether

about a score of atrophic macules situated on the trunk, on the upper part of the back, the chest, and the abdomen. There were also two or three radiating from the axilla on its anterior fold, and one below the eye on the right cheek. They were rounded, or oval, with their long axis in the direction of the "lines of cleavage," and of an average long diameter of $\frac{1}{2}$ in. They were of pale lilac colour, and gave to the finger the impression of a hole in the skin covered by a thin membrane, while on folding up the skin they could be made to bulge outwards from distension by the tissues beneath.

The particular interest of this case lay in its association with syphilis. Many examples had now been recorded of atrophic macules following a secondary syphilitic eruption. Erasmus Wilson, Colcott Fox, and Malcolm Morris in this country had demonstrated cases of macular atrophy after syphilitic eruptions, and Balzer, Fournier, Danlos, Mibelli, and Volk among Continental observers. The exhibitor had previously shown two cases of syphilitic origin, and had observed one other in addition to the present case. In two cases the atrophic macules had been associated with leucoderma syphilitica on the neck (Section of Dermatology, October 20, 1910, and June 15, 1911).¹ But syphilis was not the only known antecedent of this condition. Some cases had been associated with tuberculosis, and the exhibitor had shown the case of a phthisical person in whom the atrophic areas corresponded with groups of lichen scrofulosorum (Section of Dermatology, October 20, 1910).¹ Graham Little had brought forward a case of macular atrophy of the trunk, associated with lupus erythematosus of the face, and Thibierge had described a similar case. It seemed, therefore, that macular atrophy, once known as idiopathic macular atrophy, could be the result of various toxins, particularly of syphilis and tubercle—which produced these lesions by causing atrophy of the elastic fibres of the corium.

Dr. GRAHAM LITTLE asked if Dr. Adamson could say whether the atrophic patches had appeared in the sites of previous syphilitic lesions. In the case of macular atrophy with lupus erythematosus which Dr. Adamson had mentioned as having been shown by himself it had not been possible to establish the connexion between the atrophic areas and previous lupus erythematosus patches.

¹ *Proceedings*, 1911, iv, pp. 1, 122.

Case of Linear Nævus in Mother and Child.

By H. C. SAMUEL.

THE patient was a married woman, aged 26, who had had two children. She came complaining of the condition of her forearm and neck about four weeks ago. The lesions looked like flat warts, but more careful examination showed the condition to be linear nævus. He showed the patient because of the lateness of onset of the condition—it developed in her sixteenth year on the chest and axilla—and there was a long interval before its appearance on the neck and forearm—namely, not till the age of 25. He asked whether this condition usually followed the course of the superficial nerves, superficial vessels, or the lines of cleavage or metameres; also as to the best treatment. He believed that carbon dioxide snow had proved disappointing. The patient's daughter, aged 9, was beginning to exhibit the development of the same condition on the same side in the same situations.

DISCUSSION.

Dr. ADAMSON said that it was characteristic of linear nævus that it frequently did not appear at birth or in infancy, but often some years later, and even as late as puberty. In some cases the warty streaks continued to increase in size and number even after puberty, while in others they diminished or even disappeared entirely. He considered carbon dioxide snow the best treatment for this condition, but would apply it only to parts which were exposed or which caused inconvenience—not to the whole extent of the lesions.

Dr. GRAHAM LITTLE had had some success in treating warty nævi of this type with freezing with carbon dioxide snow, but had also had many disappointing results with the treatment.

Case of Generalised Atrophic Sclerodermia with Sclerodactylia.

By F. PARKES WEBER, M.D.

THE patient, Mrs. B. T., aged 44, a Jewess, was a rather slender woman of medium height. She presented a condition of symmetrical, very chronic, typical atrophic sclerodermia, involving her face, neck, and hands. The face, neck and region of the clavicles were covered by

atrophic, tightly stretched skin, marked by numerous blotchy and fine branching telangiectases, and showing characteristic pigmentary changes on the neck and about the clavicles. The hands were, however, much more severely affected by the disease, and furnished the characteristic picture of a late stage of *severe atrophic sclerodactylia*. The livid, shiny, atrophic skin was tightly contracted about the bones of the fingers, which were more or less fixed in various positions of contracture. She frequently suffered from superficial indolent ulcers (caused by any slight traumata) over the knuckles of the fingers; these ulcers were very painful and very slow to heal. There was no decided scleroderma of the feet, that was to say, the disease in the feet had not yet reached the contracted, cicatricial, or atrophic stage, as it had in the hands; but the toes and distal portions of the feet tended to be livid and cold, and at present she was suffering from a superficial indolent ulcer over the left heel, which gave her much pain. She suffered also from occasional pains elsewhere in the limbs, but those associated with superficial ulceration on the heel and fingers were at times very severe, and often gave rise to sleeplessness at night (as most kinds of "ischæmic" ulceration of the extremities did). Her pains were, however, she said, temporarily relieved by taking aspirin. Dr. Weber could not feel any pulsation in the dorsalis pedis artery of either foot. Both radial arteries and both radial pulses seemed to be normal. The brachial systolic blood-pressure, estimated in October, 1912, was just over 100 mm. Hg. in both arms. Röntgen-ray skiagrams, taken by Dr. N. S. Finzi, in October, 1912, had shown decided general atrophic changes in the bones of the face and considerable atrophy of the finger-bones, especially of the terminal phalanges, almost all of which were shortened by actual disappearance of their tips. The patient's blood serum, in December, 1912, had given a negative Wassermann reaction for syphilis.

According to the patient herself, her illness commenced when she was aged 32, after the birth of a stillborn child. This was her fourth child. Her two first children were still living and healthy, aged 17 and 16 respectively. Her third, fifth and sixth children died in infancy. She had had no other children and no miscarriages.

Dr. Weber had had an opportunity of examining the patient during the past ten or eleven years on various occasions, when she was an in-patient at the German Hospital under the care of his colleague, the late Dr. K. Fürth. Thyroid treatment and subcutaneous injections of fibrolysin had been tried, but with doubtful results. Local hot baths

were, probably, more useful. When Dr. Weber saw her about 1904, before obvious sclerodactylia had developed, some of her fingers used occasionally (for a few days at a time) to have a swollen, shiny, slightly bluish appearance, a condition that might be termed "bluish acro-œdema," perhaps allied to the *œdème bleue* of Charcot.

This mode of commencement was perhaps one of the most interesting features in the case, which in many respects resembled that of a young woman shown in 1901 by H. D. Rolleston and S. Vere Pearson before the Clinical Society of London,¹ and shown again, in 1909, by H. D. Rolleston and G. D. H. Carpenter before the Clinical Section of the Royal Society of Medicine,² under the heading "Sclerodermia with Sclerodactyly."

It was highly probable in cases of sclerodactylia of the feet that (even in cases in which no pulsation in the pedal arteries can be felt), if one could examine small arteries such as the internal plantar and dorsal arteries of the foot, no true endarteritis obliterans, nor thrombosis, would be found, but only contraction and thickening (not merely apparent thickening) of the arterial middle coats. At all events, that would best accord with what the speaker found in the subsequent examination of the amputated foot of a young man, whose case he had described in the *British Journal of Dermatology*³ under the heading "Trophic Disorder of the Feet—an Anomalous and Asymmetrical Case of Sclerodactylia with Raynaud's Phenomena."

Some of the cases of "trench frost-bite" or "trench foot" (French, *mal des tranchées*) amongst the soldiers in the present war seemed to present striking analogies with the condition of the foot in cases of sclerodactylia, especially with cases accompanied by a tendency to superficial gangrene, but before the atrophic (contracted) stage of the disease in the foot had been reached. The great ætiological difference between the two seemed to lie in the fact that in the former (trench frost-bite) the immediate exciting cause was a powerful and obvious one, whereas in the latter (sclerodactylia) the constitutional factor was apparently the main one, the immediate exciting cause being generally slight or obscure. There was naturally a corresponding difference in regard to prognosis. The greater the constitutional factor and the slighter and more obscure the exciting cause, the less favourable was

¹ *Trans. Clin. Soc. Lond.*, 1901, xxxiv, p. 215.

² *Proceedings*, 1910, iii (Clin. Sect.), p. 32.

³ *Brit. Journ. Derm.*, 1901, xiii, p. 41.

the course of the disease likely to be. It was, however, possible that ultimately sclerodactylia would be found to be connected with some morbid action of the ductless glands or with the prolonged presence of some ergot-like toxin, either taken unknowingly with the food or manufactured constantly in small quantities within the patient's body (in his alimentary canal or in his metabolic organs).

Dr. STOWERS said he had failed to detect any abnormal pulsation in the arteries of the foot in such cases. The case which first attracted his attention to this disease was that of which coloured drawings were shown—possibly the most severe of all recorded instances—the hands and fingers having the same characteristics as Dr. Weber's patient but to a much severer degree. His patient, a married woman, dated her disease from a difficult confinement at the age of 23, her previous health having been fairly good. Soon afterwards she lost weight and complained of various subjective symptoms, during the existence of which her right hand and fingers became swollen and stiff. During the following five years the morbid process, still limited to the right hand, gradually developed, the skin over the phalangeal joints becoming inflamed with some discharge of pus from small ulcerations over the knuckles, and slowly contracting. By degrees the integument, at first tender and hyper-sensitive, became absolutely painful, sharp "flashes" of pain of a neuralgic kind starting from the finger-tips, radiating over the hand, and passing up the forearm. As months elapsed, the integument over each articulation again swelled and inflamed, so much so, that the least movement was accompanied by acute suffering. The skin did not present excessive pigmentation, the colour remaining natural, or of a reddish hue, the tightened and contracted state being observable at the extremities or pulps of the fingers previous to the extension of the state to the joints which followed during the next five years. As nearly as possible five years after the right hand became affected the left commenced to undergo similar changes. Besides the shortening and contractions of the fingers from bone absorption, all the joints, except the upper (metacarpophalangeal) of each thumb, became fixed. Skin changes of the same character, though less intense, involved the thighs and lower extremities. The disease gradually progressed, producing the following additional structural alterations—viz., the angular outline of the face, made conspicuous by the relative prominence of the malar bones together with the shrinking and falling in of the cheeks; the retraction of the eyelids, producing considerable space between the globes and their coverings; the shrivelling and irregular contractions, or crimping, of the lips. Besides these, the whole integument was dense, hard, and unyielding; the surface being dotted, here and there, with numerous small capillary telangiectases; and lastly, the existence, more particularly on each side of the forehead and towards the hair border, of marked excessive pigmentation. The patient died of pneumonia about the age of 55.

Case of Simultaneous Herpes Zoster of the Third and the Eighth Dorsal Segments of the Left Side in a Boy aged 11.

By E. G. GRAHAM LITTLE, M.D.

THE eruption had begun in the lower segment, on the Saturday previous to the meeting; there had not been any preceding pain, the first symptom being the rash, and there were some six areas of typical herpetic vesicles stretching from the anterior midline to near the posterior midline, along the level assigned in Head's diagrams to the eighth dorsal. On the following Sunday and Monday the rash began to appear in the upper third dorsal segment in two large herpetic patches—one above the left nipple and separated from this by two finger-breadths, and one over the level of the spine of the scapula. Both these areas were well marked when shown, and there was in addition a small circumscribed reddened patch, without obvious vesicles upon it, on the middle of the inner surface of the upper arm. Pain had been considerable in this segment, being referred to the left axilla and along the length of the forearm. There were no aberrant vesicles, and the interval between the levels of the third and fifth dorsal segments was perfectly clear of all eruption. There was a rather obscure history which might have some bearing on the causation, the mother stating that the child had had a fall on the pavement while roller-skating on the previous Thursday, but that he had shown no bruising, though complaining at the time of the fall of some pain in the lower part of the back. There was no spinal tenderness along the whole line of the vertebræ.

The case was probably unique in the simultaneous evolution of the eruption in two segments on the same side of the body, separated by the wide interval represented by five segments. Head, who had probably had the largest possible experience of the eruption of herpes zoster, had never seen this phenomenon, although he had notes of one case, not published, in which the fifth dorsal on one side and the twelfth on the other side had been the seat of a simultaneous herpetic eruption.

DISCUSSION.

The PRESIDENT agreed that both eruptions were herpes zoster, and he was interested to hear that it was a unique experience to have two distinct segments affected on the same side.

Dr. GRAY thought it was fairly frequent for contiguous roots to be involved. Was Dr. Little satisfied that the intervening space was not affected? [Dr. LITTLE said that he was.] The best marked case of bilateral herpes zoster he had seen followed on an injection of salvarsan. On the third day after the injection typical lesions appeared on both ears, on the right side of the lower lip, absolutely demarcated by the middle line, and on the left margin of the tongue.

Mr. SAMUEL referred to a paper by Dr. Essex Wynter, in which he stated that 75 per cent. of the cases affecting the small nerve ganglia—i.e., the ganglia connected with intercostal nerves—occurred in children under the age of 14; while it was usually the larger ganglia which were involved in the herpes zoster of adults.

Dr. ADAMSON thought both areas were herpes zoster. He had not previously heard of two separate areas being affected on the same side.

Dr. DOUGLAS HEATH said he had tabulated a large number of cases of herpes zoster, but he had not previously seen or read of two areas being affected on the same side. He had never himself seen bilateral herpes zoster on the body.

Case of Dermatitis Herpetiformis.

By E. G. GRAHAM LITTLE, M.D.

THE patient was a boy, aged 8. The eruption had begun some fifteen weeks ago, with a bullous rash about the neck and the left groin, and the earlier diagnosis had been that of bullous impetigo. The case was lost sight of for some time, during which the application of ammoniated mercury ointment for several weeks had been attended by no improvement but by an extension of the rash, and when the patient attended again after the interval the diagnosis had consequently been altered to that of dermatitis herpetiformis. The present distribution was as follows: the neck and the left groin, the sites of the first appearance, remained the most affected parts; there was an area triangular in shape (with the base reposing on the line of the clavicles,

and the apex at the xiphoid) covered very closely with vesicles grouped for the most part in herpetiform manner and on a very inflammatory base, the whole area offering a fanciful resemblance to a red breast-plate studded with pearls. There was a crop of less inflammatory vesicles around the umbilicus, and there were several isolated, not reddened, bullæ about the abdomen. In the left groin more especially, and stretching across the base of the penis to the right groin another very inflammatory band studded with large bullæ was present; a similar highly inflammatory patch was found on the back of the neck and on the trunk between the scapular spines. Some bullæ grouped in a roughly circinate manner occupied the skin over the internal and external malleoli on both sides, and there were a few sporadic bullæ on the dorsum of the feet and behind the ears. The eruption was sufficiently itchy to disturb sleep, and the boy consequently slept in gloves to prevent scratching. There were no lesions on the mucosa of the mouth. Individual vesicles were mostly small, the size of a pin-head, and with frequent herpetiform grouping, but there were also numerous isolated bullæ much larger than this, some of these being of the size of half an almond. The contents of the blebs were for the most part clear. Several film preparations were stained for bacteria and showed only well-formed polymorphs and no bacteria whatever.

DISCUSSION.

The PRESIDENT agreed with Dr. Little that this was not impetigo, because if it were, with bullæ of so great size, the contents would have been pustular long previously. To draw a hard-and-fast line between dermatitis herpetiformis and pemphigus was, he now thought, impossible; but that point would be dealt with in the forthcoming debate on the pemphigoid eruptions. He did not think the accidental grouping of a few of the lesions constituted an essential difference between the two diseases. Somewhat in favour of Dr. Little's view was the itching, a feature which Duhring made much of. Unna's opinion, often quoted, that dermatitis herpetiformis in young children was confined to boys (*Hydroa puerorum*) was undoubtedly too absolute. He had himself seen two cases in young girls.

Dr. ADAMSON regarded this case as one of pemphigus vulgaris and not a very uncommon affection in children. The eruption usually cleared up when the patients were put to bed and given daily baths, though there was often a relapse if they were allowed to get up too soon. In some cases milder relapses recurred for a year or so, but all usually got well ultimately.

Dr. DOUGLAS HEATH said that in the cases of what he recognised as dermatitis herpetiformis in children the bullæ were generally large. In the adult, on the other hand, the lesions were often uniformly moderate in size. He agreed with Dr. Little's diagnosis. These cases were rapidly amenable to arsenic.

Mr. H. C. SAMUEL said that a point in favour of the diagnosis of pemphigus rather than that of dermatitis herpetiformis was the fact that the bullæ arose from normal skin instead of from an erythematous base.

Dr. LITTLE said, in answer to those who had expressed their preference in this instance for the designation of pemphigus, that in his opinion the separation of dermatitis herpetiformis was premature, but if it was to be accepted at all as a group apart from pemphigus this case was clearly and inevitably to be classified in that category. It seemed, in fact, to combine most of the criteria chiefly relied upon for differentiating dermatitis herpetiformis from other bullous diseases, as described in Duhring's original paper. The distribution in particular might be compared with that emphasised by Duhring as specially common sites—namely, "the neck, chest, back, abdomen, upper extremities and thighs." "The irregularity in size and form of the vesicles," "their firm, tense walls," "their herpetic character," and the considerable pruritus, singled out for special mention in that paper, were conspicuous here. As regards the sex and age of this patient, in a series of twenty-four cases described by Meynet and Pehu,¹ occurring in children, the following conclusions were drawn by these authors: (1) The later years of childhood were more subject than the earlier, especially between the ages of 6 and 10; (2) seventeen out of the twenty-four cases occurred in males. The exhibitor had shown at the Dermatological Society of London a case with very similar distribution in a female child aged 3,² who had been under his observation with repeated attacks of the disease for several years. He had also reported another case in a little girl,³ and Gardiner⁴ had described a series of four cases occurring almost simultaneously in female children under 9 years of age. But the disease was undoubtedly much commoner in male children.

¹ Meynet and Pehu, *Ann. de Derm. et de Syph.*, 1903, 4me sér., iv, p. 893.

² *Brit. Journ. Derm.*, 1903, xv, p. 409.

³ *Ibid.*, 1902, xiv, p. 425.

⁴ *Ibid.*, 1909, xxi, p. 237.

Case of Epithelioma of the Right Thigh.

By E. G. GRAHAM LITTLE, M.D.

THE patient was a woman, aged 64. This case had been described in a recent paper read before the Harveian Society by the exhibitor as an instance of rodent ulcer, but the character of the ulcer was so peculiar that he had changed his opinion and had come to regard it as a possible example of Paget's disease, under which designation it was shown at the meeting. A microscopical examination had, however, now established the diagnosis of rodent ulcer, with some unusual features. The site was one of the most infrequently recorded. In a wide review of the literature the exhibitor had been able to find only one other example of rodent ulcer in the same situation.¹ The appearance of the ulcer was also atypical; there was absolutely no hardened edge, the surface presented a velvety red aspect which the nurse in charge of the case had aptly described as "like a tomato, cut across," and there were some islands of epidermisation scattered over this surface which had suggested the diagnosis of Paget's disease, this feature having been much insisted upon by the French school as a characteristic of that condition. The ulceration was now about 2 in. by 1½ in. in size. There was a history of a pigmented mole, present from birth, having occupied the site of the ulceration, and having remained unaltered until about three years ago when some injury had abraded the surface and ulceration had slowly proceeded from this centre. No enlarged glands could be felt in the groin. The whole affected region was removed by operation, and microscopical investigation of some of the excised tissue revealed typical rodent growth.

¹ Bidwell, *Brit. Journ. Derm.*, 1895, vii, p. 265.

Dermatological Section.

April 15, 1915.

Dr. J. J. PRINGLE, President of the Section, in the Chair.

Case of Rodent Ulcer.

By GEORGE PERNET, M.D.

THE patient was a young man, aged 26, attending the West London Hospital. The disease began two years ago as a small pimple in the left naso-orbital region which had gradually increased in size. The lesion was a characteristic rodent ulcer about $\frac{1}{2}$ in. in diameter. The case was shown on account of the age of the patient, who was comparatively young for rodent ulcer, though the exhibitor was quite aware that even younger patients had been shown.

DISCUSSION.

The PRESIDENT did not think rodent ulcer at this age was so rare as Dr. Pernet seemed to imply. He had himself seen a considerable number of early cases in medical students, averaging about 20 years of age.

Sir MALCOLM MORRIS said he believed the earliest age at which it occurred was recorded in the books as 18 years.

Dr. SEQUEIRA said he had published particulars of a case in a boy, aged 12,¹ and he had shown one in a girl, aged 15.²

Case of Yellow Picric Staining of the Skin.

By GEORGE PERNET, M.D.

THE patient was a fair man, aged 34, engaged in filling explosive shells. There was general yellow staining of the skin due to handling the picrate preparation, especially about the head, neck and hands.

¹ *Brit. Journ. Derm.*, 1912, xxiv, p. 391.

² *Ibid.*, 1909, xxi, p. 57.

The hair was stained, as also the eyebrows and eyelashes. The patient had attended the West London Hospital for an eczematous condition of the left forearm and back of right hand.

DISCUSSION.

Dr. DORE said that for some time he had been using an ointment of 5 or 10 per cent. picric acid in vaseline in the treatment of ringworm of the scalp. This ointment was considerably stronger than that suggested by Dr. Winkelried Williams, and he had recently given it up on account of the pink discoloration of the urine, and the yellow staining of the hair, which sometimes persisted as long as a year after the ointment was discontinued.

Sir MALCOLM MORRIS asked whether any member had had experience of picric acid, when used for burns, causing serious poisoning. In the case of a very bad burn picric acid was applied, and in a short time it appeared in the urine; but the patient did not suffer in health, and the burn healed up.

Dr. A. M. H. GRAY said he had seen picric acid used for burns in many cases, but had never seen any resulting injury.

Dr. H. W. BARBER said that in the last three months he had seen two cases. In one he was treating ringworm with picric acid, and after a week the child became ill, the conjunctivæ were stained yellow, and the urine was, in appearance, almost like bile-stained urine. The other case was that of a woman who scalded her chest; picric acid was applied, and her urine became extremely dark-coloured. She suffered from a profuse erythematous rash, and had a temperature of over 101° F. He did not think the rash and the temperature had anything to do with the original scald. Both patients were well in a month.

Dr. PERNET replied that he could corroborate Dr. Dore's remark in connexion with ringworm of the scalp, because, though he had not used picric acid himself for that condition, he had seen ringworm patients in whom it had been used. But apparently it did not cure ringworm of the scalp. In answer to Sir Malcolm Morris, he could not recall a case in which the acid had been used for burns with fatal result: in the case of burns it seemed to do well, but he considered picric acid solutions should be employed with care, especially as regards percentage strength and the degree of the burn. It must not be forgotten that picric acid was a trinitrophenol, and that phenol was poisonous to children.

A Persistent Ulcer of the Plantar Surface of the Right Foot resulting from Exposures to X-rays.

By E. G. GRAHAM LITTLE, M.D.

THE patient was a young lady, aged 24, sent to the exhibitor by her father, a general practitioner, on March 22, with the following history: She had had for some time a sessile wart the size of a threepenny-piece on the sole of the foot about 1 in. posterior to the little toe. This had been treated by exposures to X-rays, which had been made, without medical supervision, by a very experienced sister in a hospital X-ray department. The first exposure was made in the first week of January, and five applications in all were made at intervals of one week. Dosage was measured not by pastille, but by time exposures—on the first two visits two and a half minutes with current of $\frac{1}{2}$ milli-amperes, on the three subsequent visits four minutes with same current. A week after the last application the dermatitis appeared, and this was followed a little later by a "burn" the size of a florin, with a deep ulceration surrounded by a wide red areola; the whole foot became excessively painful, and the glands in the right groin enlarged. After three weeks' rest the ulcer had shrunk in size, when a return to active occupation, and especially use of the foot, resulted in a breaking down of some of the apparently healed tissue, and an extension of the ulceration and surrounding redness. The pain was so severe as to suggest neuritis. When seen by the exhibitor on the date mentioned, there was a deep ulceration about 2 in. by $1\frac{1}{2}$ in. in size, with a deep angry redness of the whole anterior half of the sole of the foot. Part of this redness was ascribable to the septic nature of the surface. Applications of a weak tincture of iodine and absolute rest for three weeks had effected marked improvement.

DISCUSSION.

THE PRESIDENT said that his experience of the results of X-rays, applied by others, in the treatment of warts, was that they were curiously capricious. He had been impressed with the frequency of failures to cure and of the production of X-ray dermatitis. A small number of warts successfully removed by radium had come under his observation.

Dr. SIBLEY thought the application of X-rays for warts was a mistake, because no effect on the warts was produced unless a dangerous dose of rays was given. He had seen it stated that radium had a very soothing

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effect on X-ray dermatitis, but he had not had experience of it. In answer to Dr. Adamson, what he considered a large dose was one and a half pastilles. For warts, he thought the best treatment was ionisation with magnesium sulphate, placing the affected area in a 2 per cent. solution whenever practicable.

Dr. ADAMSON thought these cases of painful plantar wart were best treated by X-rays. It was necessary to give as much as one and a half pastille doses, and sometimes to repeat this, a proceeding which was without danger so long as the healthy skin was covered with a lead shield and only the actual wart exposed to the rays. In this case the rays had evidently been applied without this precaution. He would not advise the application of radium in this case, because it was an acute X-ray burn. Radium treatment should only be employed in the late ulcers of chronic X-ray dermatitis. He thought the ulcer would heal in course of time without any special treatment.

Dr. DORE thought that X-rays were particularly suitable for multiple warts, though they were capricious in their reaction to the rays. They often improved after a full Sabouraud pastille dose, but if there was no immediate effect he thought it was a mistake to persist in the treatment by this method. He believed the latter course was answerable for many of the bad results.

Dr. PERNET said that for multiple juvenile warts X-rays did not always answer. In his experience such warts were very troublesome to get rid of in some cases.

Dr. MACLEOD said that for painful verruca plantaris he had obtained more satisfactory results by X-rays than by any other means. He found that two pastille doses at an interval of about four weeks usually sufficed. He had not obtained good results either by carbon-dioxide freezing or ionisation, but had not employed radium. He had found that ulceration in chronic X-ray dermatitis sometimes healed with small exposures to radium, which at the same time relieved pain.

Dr. SEQUEIRA agreed that for plantar warts in young people, treatment by one and a half pastille doses of X-rays was good, so long as the surrounding skin was protected. In the case of multiple warts, he had often been disappointed with this treatment; but he had occasionally seen extraordinarily good results from the Kromayer lamp. He had seen it fail, however, in apparently similar cases, and the same uncertain results were obtained with ionisation and with the internal administration of calcium salts. He feared the X-ray dermatitis in this case would recur, but radium might relieve the pain.

Dr. P. S. ABRAHAM thought it was a good thing for the Section that such cases should be brought before it. During the last year he had seen some bad results from X-ray treatment, two of them having been in the practice of eminent radiologists in London. When such untoward results occurred, it seemed a pity that the profession should not know of them. He had not himself used X-rays for warts; his treatments had been ionisation, the electro-cautery, acid nitrate of mercury, and carbonic acid snow.

Folliculitis Decalvans et Atrophicans.

By E. G. GRAHAM LITTLE, M.D.

THE patient was a lady, aged 55, originally resident in Holland, but for the last twenty years living in this country. She was sent to the exhibitor by Dr. Lassueur, of Lausanne, with the following note: "The aspect of the skin seems to me to recall lichen spinulosus, especially the lesions of the flexural folds, and the armpits. But the condition of the scalp is very unusual, and I am altogether embarrassed to make a diagnosis which fits in with the skin affection." The difficulty experienced by this very expert dermatologist would probably be felt by others. The history given by the patient was as follows: Some ten years ago she began to have an inflammatory condition of the vertex of the scalp, which resulted in a very slow shedding of the hair and the development of bald patches. There were no subjective symptoms, and the affection, as it gave no trouble, seems to have been ignored. But some five months ago a similar, though very much more rapid inflammation, accompanied by great itching, became apparent on the sides and front of the scalp, and the hair now came away in handfuls; and at the same time an itchy eruption was manifest in the axillæ, the groins, and the flexures of the elbows. In these positions there was a folliculitis in grouped patches with a general resemblance to lichen spinulosus, as remarked by Lassueur, and on the back of the trunk, from the shoulders to the level of the lower angles of the scapulæ, and on the back of the upper arms there was a diffuse, slightly spiny folliculitis, also itchy and reddened. In the axillæ and groin, in positions where hair was normal, this had been almost entirely destroyed, as it had been on the scalp, and with the exception that there was very marked atrophy on the scalp and as yet none of the skin in the axillæ and groin, the conditions in these parts were similar to those of the scalp. The disease of the scalp was obviously that familiar under the name of folliculitis decalvans, with the subsequent atrophy, on account of which the addition of "atrophicans" was made to the title. This terminal atrophy led to a superficial resemblance to alopecia, and the term "pseudo-pelade," invented somewhat unnecessarily by Brocq, expressed this resemblance. The exhibitor had considered the possibility of an early Darier's disease as an explanation of the features resembling lichen spinulosus, especially as it appeared in the axillæ and groins,

positions where Darier's dermatosis was most frequently met with. In the magistral description of the disease contributed by Darier to the *Pratique Dermatologique*, he stated that the "sites of the disease (foyers morbides) were frequently, but not exclusively, follicular," and for this reason, among others, he rejected the title "keratosis follicularis" proposed as a synonym. And he remarked, further, that though the scalp was frequently the site of disease "it never becomes alopecic." The exclusively follicular character of the lesions in this case, and the atrophy of hair wherever this was normally present, seemed to constitute important differences therefore, which excluded it from Darier's disease. But it could not well be maintained that the pathological processes in the case of the scalp and the other hairy parts were separable, for in both cases there was essentially an inflammatory folliculitis with destruction of hair. The exhibitor had not seen or read of an exactly similar combination, and therefore contented himself with recording this case under the non-committal title which seemed best to express the pathological facts. In addition to the itching, which was considerable, there were other and more anomalous subjective symptoms. The patient complained of always feeling cold, even when immersed in a hot bath; she suffered from frequent headache and from habitual constipation. Menstruation had ceased five years ago. She had two healthy children, and there was no family history of any importance.

DISCUSSION.

The PRESIDENT remarked that he would have unhesitatingly diagnosed the condition of the scalp as a folliculitis decalvans and the follicular keratosis of the axillæ and neighbouring parts as probably an early stage of Darier's disease. He had no opinion to offer as to the association between the two conditions present.

Sir MALCOLM MORRIS said there were so few cases of Darier's disease recorded that it was difficult to know whether the two diseases named were associated. If there had been no lesion on the non-hairy part of this patient's body, he believed there would have been no question as to the diagnosis of the scalp condition. Many cases of folliculitis decalvans had been seen since the first case shown at the old Dermatological Society of London about 1882. He did not know whether the present case was an early one of Darier's disease or not.

Dr. ADAMSON thought the scalp condition was certainly alopecia cicatrisata or folliculitis decalvans. He knew of no case in which this affection had been present also in the axillæ, but the axillary eruption in this case might well be

called "folliculitis decalvans," because there was folliculitis with loss of hair. Its presence there seemed to throw some light upon the scalp condition, and suggested that this was also primarily a folliculitis. He did not regard the eruption in the axillæ as Darier's disease, for Darier's disease was a *pseudo-folliculitis* and not really an affection of the follicles.¹

Dr. SEQUEIRA said he had shown one case before the Dermatological Society of London, in which the diagnosis of Darier's disease was accepted,² and in that case some of the elementary lesions were very much like those in this case. His view of the present case was much like the President's, that the lesions on the scalp were those of folliculitis decalvans, while in other regions they resembled those of Darier's disease. He thought it would be worth while having sections taken.

Dr. MACLEOD agreed that the condition of the scalp was folliculitis decalvans, and believed that the affection of the axillæ belonged to the same category, and was a folliculitis leading to keratosis at the mouth of the follicles and atrophy of the hair. He did not consider that the affection in the axillæ was Darier's disease. He had made a number of sections of Darier's disease and found that the follicles were affected as well as the surrounding epidermis.

Multiple Rodent Ulcers of the Left Cheek of Unusually Short Duration.

By E. G. GRAHAM LITTLE, M.D.

THE patient was a man, aged 43, a barge builder by trade, and he gave the following history: On February 13 of this year he was repairing the bottom of a barge which was much infested with barnacles and weeds, when his left cheek came into violent contact with the foul bottom, causing two wounds in the position of the present lesions. The upper one was at the outer angle of the left orbit and in this position an abscess formed from which foul matter was evacuated. The centre ulcerated, and when seen there was a shallow ulcer surrounded by a salient hard ridge, the whole lesion being the size of $1\frac{1}{4}$ in. by $\frac{3}{4}$ in., and involving the upper and lower eyelid and the adjoining cheek. Over the malar eminence an inch below this ulcer there was a waxy nodule without ulceration, the size of a threepenny-piece, which was ascribed to the same accident. No glands could be felt to be enlarged

¹ Audry and Dalous, *Journ. des Maladies cutan. et syph.*, 1904, xvi, p. 801 (abstracted in *Brit. Journ. Derm.*, 1905, xvii, p. 232); and Constantin and Levrat, *Ann. de Derm. et Syph.*, 1907, 4me ser., viii, p. 337 (abstracted in *Brit. Journ. Derm.*, 1908, xx, p. 204).

² *Brit. Journ. Derm.*, 1905, xvii, p. 266; also figured with sections in the exhibitor's "Diseases of the Skin," 2nd ed., p. 475.

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in connexion with these lesions. Clinically both ulcer and nodule were typical of rodent growth. It was proposed to excise one of the lesions for microscopical report and the result of this examination would be contributed to a later issue of the *Proceedings*.

Syphilitic Gummata in a Patient with Diabetes Insipidus.

By J. H. SEQUEIRA, M.D.

THE patient, a Jewish porter, aged 35, attended the Skin Department of the London Hospital on March 13, 1915, with definite gummatus infiltration about the elbow, the inner side of the upper arm and the upper part of the forearm on the right side. The lesions had not broken down and had been gradually developing during the past two months. The patient was a stout, flabby, anæmic man, and he stated that he had been in the London Hospital in 1908, under Dr. Robert Hutchison, suffering from diabetes insipidus. By the courtesy of Dr. Hutchison the exhibitor was able to add the following particulars of the case: Four days before his admission to the ward the patient began to pass large quantities of urine and was very thirsty. There was a history of gonorrhœa, but none of syphilis. While in the hospital the patient passed as much as 1,076 oz. of urine in twenty-four hours, and he was still passing from 400 to 600 oz. *per diem*. The right testicle had been removed for tuberculous disease, and the patient stated that he had lost all sexual desire. On March 24, 1915, the Wassermann reaction was found to be positive. A further examination of the patient showed that the pupils reacted normally to light and accommodation. The patellar and plantar reflexes were normal.

The case was shown to emphasise the fact that the clinical group of symptoms known as diabetes insipidus, polydipsia and polyuria was often of syphilitic origin.

Head and Fearnside published in *Brain* the case of a male, aged 27, with a history of syphilis which was contracted at the age of 21. Here also there was an acute onset of polyuria and polydipsia, and diabetes insipidus. That patient had Argyll-Robertson pupils. In 1911, a woman, aged 37, was in London Hospital with multiple gummata of the forearm; and in 1909 she had a sudden onset of polydipsia and polyuria. Her husband died of general paralysis of the insane. She also had Argyll-Robertson pupils. The present patient gave no history of syphilis, but owned to gonorrhœa in 1905.

DISCUSSION.

Mr. McDONAGH said he had no doubt that there was a very marked connexion between syphilis and diabetes insipidus, and in his opinion he thought the condition was more frequently to be met with in the congenital than in the acquired form. The lesion was in the posterior lobe of the pituitary body, and most probably a vascular one to commence with. Diabetes insipidus occurring in acquired syphilis was almost invariably associated with symptoms pointing to an involvement of the central nervous system, the lesions being degenerative in character. The patient exhibited had had diplopia; the lesion appeared to have been a vascular one, and it was when the double vision set in that the symptoms of diabetes insipidus manifested themselves. Now the patient stated that he had completely lost all sexual desire. As the trouble was not usually recognised until it had persisted for some time, and owing to the degeneration which had resulted in the meantime, nothing could be expected from antisyphilitic treatment. If, on the other hand, the case was taken early the symptoms would disappear under treatment. The speaker referred to a case presenting an anomalous skin eruption, which Dr. Sequeira had recently shown before the Section. The case was referred to the Pathological Committee for a report. It would be remembered that the patient died and that post mortem a granulomatous lesion was found in the posterior lobe of the pituitary body. The boy had diabetes insipidus when he died.

Dr. F. PARKES WEBER said he would have thought that one of the commonest recognised causes of diabetes insipidus was syphilis, either congenital or acquired. Another undoubted (occasional) cause was tuberculosis. In a man, aged 37, under his care in hospital with diabetes insipidus and pulmonary tuberculosis, the polyuria and thirst were said to have immediately followed the surgical removal of an enlarged lymphatic gland in the neck one year and a half previously. In that patient the blood serum gave a negative Wassermann reaction for syphilis. There was no hemianopsia, the visual fields were normal. Röntgen-ray photographs of the base of his skull (taken by Dr. James Metcalfe) showed no enlargement of the pituitary fossa.

Dr. KINNIER WILSON alluded to cases of diabetes insipidus associated with optic atrophy. There was good reason, experimentally and clinically, to suppose that in these cases of diabetes insipidus the lesion was a disturbance of the pituitary body; it was immaterial what the disturbing disease was. The transient diplopia of Dr. Sequeira's case was of considerable significance, as indicating some basal trouble; and it would be interesting to ascertain the visual fields in this man to see if he had hemianopia fugax: it was occasionally seen in cases of diabetes insipidus. Conceivably, the pathogenesis of this case was a certain degree of basal meningitis, some secondary internal hydrocephalus, and some pressure on the floor of the third ventricle.

Dr. PERNET said he had seen one or two cases of diabetes insipidus in syphilitic patients, but before the days of salvarsan the treatment of the syphilis by mercury did not lead to any improvement to speak of. It would be instructive to see the case again after treatment from the syphilitic standpoint.

Case for Diagnosis.¹

By S. E. DORE, M.D., and S. A. KINNIER WILSON, M.D.

DR. WILSON said he was concerned with the neurological side of the case, because he thought some light came from that side. The story was that the man had had a gradual onset of the trophic lesions on the hands and feet during eighteen months. He had lived a good deal abroad—in India and Africa—and had been travelling officially on P. and O. boats for a long time. There were indications of involvement of his peripheral nerves; he had definite therm-anæsthesia in the legs as far as the knee on the right side, and below the knee on the left side; always essentially insular or patchy—i.e., not corresponding to any particular segment of the spinal cord. He also had therm-anæsthesia in the hands, though not so marked; there was slight diminution of appreciation of pin-prick over his feet, insular in character, and not corresponding to parts where the skin was thicker than usual. He felt a touch everywhere over his limbs, except where the skin was thick and interposed a mechanical reason for reduced perception. His localisation and muscular sense were preserved. Another important point was absence of the Achilles-jerk on both sides, while the knee-jerks were normal. The plantar responses were of the flexor type. There was no evidence that in this case one was dealing with a central lesion. In the ordinary course, it might be thought the case was one of syringomyelia, but for the following reasons he did not think it was so: (1) The alterations of sensation were essentially of peripheral type, and there was no segmentation in the distribution of the forms of anæsthesia, a point of considerable significance. (2) In cases of syringomyelia, if there was change in the reflexes they were, as a rule, exaggerated, and in some cases there was marked spasticity with ankle clonus and an extensor response. This case, however, showed the opposite condition. (3) Passing to matters of opinion, he did not think this man's face was quite normal; there seemed to be a slight

¹ Shown at the last meeting (March 18); see *Proceedings*, p. 122.

commencement of involvement of the skin of the face, an approximation to the leonine facies, which was not found in syringomyelia. He could not say there was definite thickening of the peripheral nerves; but he was inclined to regard the case as one of lepra. It was undesirable to emphasise the dissociation anæsthesia, because that was not pathognomonic: it was met with in various pathological conditions. The view he had expressed tentatively was the result of a summary of the points presented by the case. He might take an opportunity, at a later date, of making a histological examination of some peripheral nerve or a part of the skin, which, however, did not show anything approximating to nodular formation.

DISCUSSION.

The PRESIDENT said members would recollect that the diagnosis of Dr. Kinnier Wilson was that generally adopted at the last meeting of the Section. His own remarks as to the possibility of a syringomyelia were made primarily to raise a debate, and were based upon a case of that disease he had seen in which the hands were affected in a manner similar to that exhibited by the patient under discussion.

Dr. P. S. ABRAHAM said he would not venture a decided opinion in an early case of leprosy without a very thorough examination. He had not done more than casually look at the present patient, and then his first idea was that it was a case of acromegaly. The man seemed to have no loss of sensation, and he (the speaker) could not feel any thickening of nerves. Moreover, if this were leprosy, one would expect the man to show some marks of it, not only patches of anæsthesia or paræsthesia, but pigmentary changes in some region of the skin. The tongue seemed syphilitic. The case illustrated the difficulty of diagnosing leprosy in an early stage. He confessed that it did not strike him at first sight as a case of leprosy.

Dr. PERNET thought the patient's facies was suggestive of lepra, and there was something about the man's appearance which made one instinctively think of leprosy. Dr. Wilson had refrained from laying stress on the bullous condition of the feet, which was a very important feature of the case. With regard to the dissociations of sensation, he possessed diagrams of a case he had had under his care with the late Dr. Radcliffe Crocker.¹ That case was one of advanced nodular leprosy. Dr. Wilson might be interested in the diagrams. Dr. Pernet would also call Dr. Wilson's attention to two papers in *Lepra*.² Leprosy

¹ "Skin Notes" (under L), 1897.

² Voit, of Petrograd, in *Lepra*, 1900, i, pp. 50 *et seq.* Abstract by Pernet, *Brit. Journ. Derm.*, 1901, xiii, pp. 281, 400. Nonne, in *Lepra*, 1905, v, pp. 22 *et seq.*, with diagrams.

began in such insidious ways that one must not be put off one's guard because the case was not a straightforward one in the early stages. The man had also been in leprosy districts. A good nerve to investigate was the external popliteal. It was worth while giving iodide of potassium in order to promote the flow of mucus from the nose, and examining the resulting discharge. The contents of the bullæ should also be investigated.

Dr. MACLEOD said that he did not see any definite evidences of leprosy. He did not regard the features as leonine, and observed that leonine features resulted from nodular leprosy of the face. This case, if it were leprosy, was a nerve case, and there were no signs of nodules. He considered that it was not unusual for the hands and feet to be symmetrically involved in nerve leprosy without any thickening of the nerves or cutaneous lesions.

Dr. KINNIER WILSON, in reply, reminded the meeting that he disclaimed any dogmatic statement about the case.

Cultures from a Case of Favus of Glabrous Skin.¹

By S. E. DORE, M.D.

Dr. DORE said that as the cultures were not regarded as typical of *Achorion Quinckeanum*, he was requested by the Section to grow them on Sabouraud's medium. He thought the result was still unsatisfactory in regard to the diagnosis of *Achorion Quinckeanum*. Some of the cultures had been grown at Westminster Hospital, by kind permission of Dr. Hebb, on Sabouraud's solmedia (Chopping), and he (Dr. Dore) had also grown some on the same medium. The former all grew as a white, downy button with fine, radiating branches, but in his culture there were concentric rings, as described by Sabouraud in old cultures of *Achorion Quinckeanum*. He thought this was important as showing the great variety ringworm cultures might assume according to varying conditions of temperature, culture media, &c.

DISCUSSION.

Dr. MACLEOD said he did not think the culture was *Achorion Quinckeanum*. He showed a typical culture of that fungus which was more luxuriant and fluffy, and he thought that Dr. Dore's culture was probably a faviform trichophyton.

Dr. BOLAM said he did not regard the cultures as *Achorion Quinckeanum*.

¹ Shown at the February meeting ; see *Proceedings*, p. 97.

Case of Epidermolysis Bullosa.

By W. KNOWSLEY SIBLEY, M.D.

THE patient, E. B., was a single woman, aged 50, a needlewoman by occupation. Her father had died from cancer of the stomach, aged 63; her mother from paralysis, at the age of 62. There were nine children in the family, the patient being the sixth; five of them were still living and well, one having died in infancy, while two were stillborn. The patient was unaware of any other case of skin trouble in the family, except a maternal great aunt who suffered from "sore" hands. When her mother was in her fourth month of pregnancy she had a severe shock from seeing a man coming out of a small-pox hospital, and the patient's condition was attributed to this cause. She was in doubt as to whether she had been born with any skin trouble, but at the age of 2 her body was stated to have been covered with blisters, with the exception of her face and back. At the age of 7 she was in a children's hospital for two years with the same condition, at the end of which time she was discharged as better, but by no means cured. At the age of 12 the skin condition was as bad as ever, and she had congestion of the lungs. She was admitted into a general hospital, where she remained for eight months. She has been attending various hospitals and infirmaries on and off ever since. The patient could never remember being free from blebs on some part of the body, but they had never been present on the face, head, lumbar region, or soles of the feet. She stated that her nails and teeth had crumbled away when she was aged about 14. She had had all the decayed stumps removed from her mouth sixteen years ago. As a child the skin was generally very irritable; of recent years there had not been any irritation, but the parts where the bullæ arose ached and burned. The patient had earned a very precarious livelihood, as whenever she attempted to follow her occupation with the needle blebs at once appeared on her fingers. Similar lesions had frequently been present inside her mouth, both on the gums and on the tongue, and if she attempted to eat a piece of meat or hard food blisters arose on her gums. She stated that formerly the blebs were most abundant over her body, especially on the shoulders, chest and abdomen, a few being scattered about the limbs. Of recent years the blebs had been chiefly present in the neighbourhood of the larger joints, such as the extensor surface of the knees and elbows, the external parts of the ankles and

the dorsa of the feet. There had never been any affection of the conjunctiva or genitalia, nor any trouble with her hair. Of recent months she had lost a considerable amount of flesh, and the skin over the whole body was greatly wrinkled.

On inspection a considerable amount of superficial scarring and pigmentation were present over the upper regions of the chest and shoulders. Smaller round and oval pale scars were abundantly present over the arms and legs, practically confined to the extensor surfaces. Recent blebs were present over the right olecranon process, both patellæ and the dorsum of the right foot. The skin of the hands was withered and much scarred, and a recent small hæmorrhagic bleb was present on the dorsum of the right hand; the palms were thickened, the nails of both fingers and toes were absent and replaced by strands of fibrous tissue. Scarring was present in the mouth, especially over the alveolar processes. She complained of indigestion and discomfort in the epigastric region; there was some fullness and dullness on percussion here, with considerable tenderness on palpation.

The growth obtained from a recent bulla was the *Staphylococcus albus*.

The blood count was as follows: Red blood cells, 4,330,000 per cubic millimetre; white blood cells, 4,300 per cubic millimetre. Differential leucocyte count: Polymorphonuclear cells, 62·5 per cent.; small lymphocytes, 25·5 per cent.; large lymphocytes, 7 per cent.; eosinophiles, 4 per cent.; basophiles, 1 per cent.

DISCUSSION.

Dr. SIBLEY said that if the bullæ were the result of traumatism one would expect them to be over the joints, &c. It was difficult to know what to include in this group. The present appearance of the case reminded him of one which he published in the *British Journal of Dermatology* for 1914.¹ A woman, at the age of 33, developed a condition very similar to epidermolysis bullosa. Up to that age she had a normal skin, but the tail of a big dog struck her on the shin, a blister arose, and from that time she had a succession of bullæ over the anterior surfaces of both legs and one arm, lasting for thirty years, though her nails remained normal, as did the remaining areas of skin.

The PRESIDENT said the case was well known to many of the members of the Section. It was now seventeen years since Dr. Colcott Fox first exhibited her at the Dermatological Society of London. He was much struck by the remarkably slow progress of her disease.

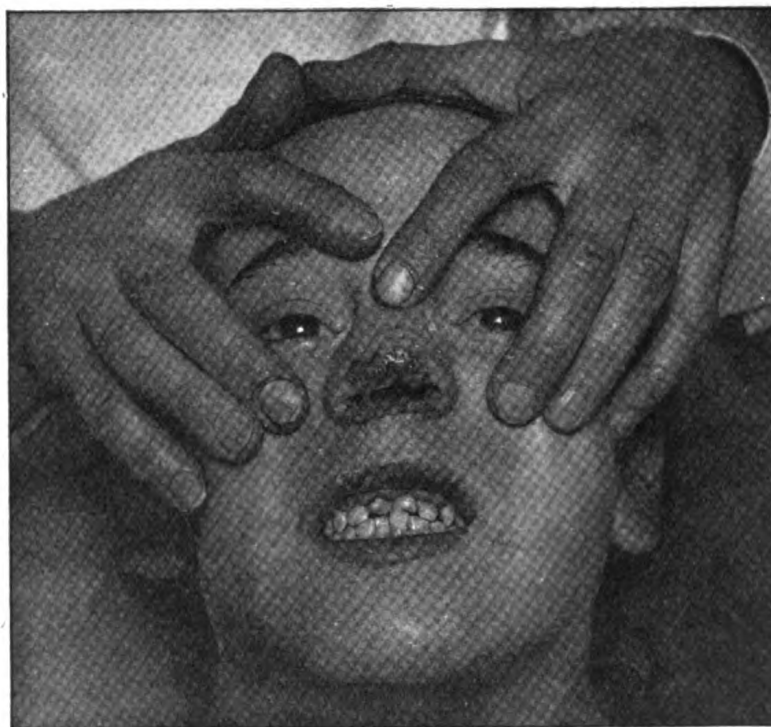
¹ *Brit. Journ. Derm.*, 1914, xxvi, p. 115.

Dr. ADAMSON said he remembered this case because the patient had for some years attended Dr. Colcott Fox's clinic at Westminster Hospital. Dr. Fox used to call attention to the general atrophy of the skin—to what he called "tissue-paper skin," and he had suggested that "this atrophy was not secondary to repeated phlyctenæ, but an essential outcome of the disease process."¹

Case of Congenital Syphilis.

By HALDIN DAVIS, F.R.C.S.

THE exhibitor showed this case (a girl, aged 13) chiefly as an example of far-advanced congenital syphilis. It displayed ulceration of



Congenital syphilis. Showing (1) tertiary ulceration of nose, (2) Hutchinson teeth.

tertiary type, somewhat rare in congenital cases, and it also exhibited very clearly the well-known stigmata of congenital syphilis in the peg-like Hutchinson teeth and the remains of old interstitial keratitis. The

¹ *Brit. Journ. Derm.*, 1905, xvii, p. 224.

active disease chiefly affected the nose. There was some external ulceration, but in addition to that the nasal septum had almost entirely disappeared. The soft palate had been destroyed by disease now quiescent, and there were also scars of old ulceration on the cheek. The exhibitor raised the question as to how far the administration of salvarsan was likely to benefit the patient.

DISCUSSION.

Dr. SEQUEIRA said he had had several cases of this type, and he had treated some by mercury and some by salvarsan, and he did not think there was much difference in the result. In this case he would be inclined to combine mercurial inunction with iodide of potassium internally. Half a drachm of blue ointment rubbed in daily, he thought, would bring about rapid improvement.

Dr. BOLAM thought this was the type of case in which salvarsan was particularly useful, because the general constitutional condition of these children was not very good. He would give 0.2 or 0.3 grm., and repeat it.

Dr. H. MACCORMAC thought the case suitable for salvarsan; mercury would not clear up the lesions so quickly.

Dr. GRAY said that, in his experience, syphilitic ulcerative conditions healed up much more quickly under salvarsan than they did under mercury, though the latter alone might be eventually effective.

The PRESIDENT said his view also was that the active ulceration would be benefited very much and very quickly by the use of salvarsan.

Favus of Scalp and Trunk.

By J. H. SEQUEIRA, M.D.

Two children of Polish parents, twins, aged 6, the subjects of extensive favus of scalp and trunk. The children were born in England. The scalps were universally affected, and there were large, irregular, sulphur-yellow crusted masses on the back of the boy and on the shoulder of the girl. The fungus was the *Achorion Schönleini*.

Case of Lichen Planus.

By DOUGLAS HEATH, M.D.

PATIENT, a male, aged 56, had an abundant eruption of lichen planus on the whole of the trunk, upper part of thighs, backs of hands and fingers, and a few scattered areas on the flexor surface of the forearms and about the knees. The patient had also many pigmented nævi on the trunk and senile keratoma of the forehead. The eruption of lichen planus on the body and hands had, according to the patient, been appearing since infancy, but the individual lesions had increased in size during the last ten or fifteen years, especially on the fingers and backs of the hands. The eruption always tended to become more prominent in summer and winter, and to flatten down and disappear in spring and autumn. Nearly all the fingers were covered on their dorsal surface with raised bluish-red smooth and shining patches as large as, or larger than, a threepenny-piece. The upper half of the chest was thickly covered with finger-nail-sized pigmented areas in the regions where the eruption had been present, and in many places, as, for example, over the upper three ribs on the front of the chest, there was an almost continuous band of pigment. On the fronts of both wrists and forearms also small deeply pigmented areas of skin could be seen. There was no eruption in the mouth and the patient did not complain of itching. On the upper and inner side of the right thigh there was a narrow band of atrophic skin running backwards towards the perineum, which by its contraction was pulling downwards a fold of skin from the abdominal wall. This atrophy had probably occurred in the situation of a pre-existent band-like patch of eruption, as a recent strip of linear lichen planus of pink colour, about $\frac{1}{2}$ in. wide could be seen on the outer side of the same thigh almost parallel with the groin.

A section cut from a small raised patch on the dorsal surface of one of the fingers showed marked thickening and downward growth of the prickle cell layer as well as hyperkeratosis and parakeratosis. There was only a small amount of cellular infiltration of the papillary body and none beneath it.

Dr. Heath desired to add that there was an extraordinary persistence and recurrence of large lichen planus-like patches on the hands, body and thighs, followed by long-continued pigmentation, and in places by

atrophy. The patches on the upper part of the thigh he considered were due to atrophy following the lichen planus-like patches. He did not remember having seen a case in which large flat patches were so widespread on the collar region; a case of Kaposi's¹ was the only similar one he could find in the records. In the case shown the eruption seemed to have begun in infancy, and at any rate had been present as long as the patient could remember. Members might perhaps think that the lesions on the back of the hands were similar to those on the face—plain warty lesions, not lichen planus—but the lesions on the hands disappeared, whereas those on the face did not. The section he exhibited showed, for lichen planus, very little congestion of the papillary body; but as it was a fairly thick papule from the back of the hand, its age might account for the congestion disappearing. Dr. Adamson had seen the section, and thought it was lichen planus and not verruca. Dr. Heath had never seen such long persistence of lichen planus lesions. Fresh lesions were constantly developing, older ones disappearing. The patches on the hands were much more raised a fortnight ago. Dr. Sequeira had shown a somewhat similar case, the knuckles being involved, but the skin section did not, he believed, show acanthosis.

DISCUSSION.

The PRESIDENT said he had never seen a case identical, or even very similar. He accepted the diagnosis of lichen planus on the ground of the characteristic primary lesions; but he questioned the accuracy of the history that the disease began at the age of three months. It was notable that mucous membrane had never been involved.

Dr. DORE said that on account of the early onset, long duration and clean-cut atrophy left by the lesions and the presence of a linear streak behind the knee, he thought the case might be an unusual example of linear nævus.

Dr. ADAMSON thought the case one of great interest. He regarded the condition, including the streak on the thigh, as lichen planus; it resembled lichen planus annularis, and he had seen such cases persist for many years. He doubted the correctness of the history, which put back the onset of this case to early childhood.

Dr. MACLEOD regarded the whole condition as lichen planus, certain of the lesions on the fingers suggesting the hypertrophic form. Microscopically the section also confirmed this view. He had not seen a case with a like distribution.

¹ *Vierteljahrschr. f. Derm. u. Syph.*, 1886, xiii, p. 571.

Cultures from a Case of *Microsporon Tinea* of the Scalp in an Adult.

By J. H. SEQUEIRA, M.D., and W. J. OLIVER, M.B.

MRS. B., aged 32, first attended the Skin Department of the London Hospital on January 26, 1915. She complained of an itching of the head, which she had first noticed in September of last year. Since that date she had been regularly attending another hospital for the same complaint, and had been treated with "an ointment containing iodine" for the condition, which had been diagnosed there as ringworm, when she had had red patches all over the scalp. She had cut her hair quite short about the end of November. She had always had a scurfy head, and her hair had been falling for the last five years.

On her first attendance at the London Hospital she brought her three children, all of whom had tinea capitis (showing a *microsporon* fungus); this condition had dated in the oldest case from July, 1914. The affection had first been noticed on this child's scalp as a "patch of dirt" which the mother had tried to wash off with a piece of flannel, using the same material later on her own and the other children's heads. In August the same child had had red rings on her chest, and the hair had begun to fall in September about the same time as red rings appeared on the heads of the two other children, when a small area of red spots was noticed on a fourth child's scalp. The whole family had attended the same hospital for ringworm since that time (September, 1914) until January of this year, and had been treated with ointment without showing much improvement. When first seen in January at the London Hospital the three children were all ordered X-ray treatment.

The mother's condition improved under antiseptic treatment, and the hair was allowed to grow again, but the irritation returned in March.

On March 26 there were seven areas with the hair cut short on account of irritation. One of these, as on the previous visit, showed no scaling, but definite broken stumps which contained the *microsporon* were seen in the stained specimens. No short broken hairs were recognised over any of the other six areas, nor was any fungus found in the few short hairs removed from some of these areas. One of the

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children treated with X-rays at the end of January exhibited on this date a round, scaly, dry lesion with a red narrow border on the right forearm. This, according to the mother's statement, had commenced as one red ring inside another.

On March 27, tubes of 4 per cent. glucose and maltose agar were inoculated by Dr. Oliver, with some of the stumps removed from the patient on the previous day, and also with hair taken from one of the children (the first one to become affected) on her first attendance in January.

On April 6, when next seen, all the tubes, save one glucose tube, had definite growths about the sites of inoculation consisting of a small raised white "fluffy" central tuft with a narrow border of ill-defined surface growth.

On April 12, cultures from the child's head showed a "downy" surface growth with a more "woolly" central tuft. Cultures from the patient exhibited a rather flocculent white surface growth about a more raised central tuft.

The growths were evidently those of an animal microsporon, the *Microsporon felineum*.

Microsporon ringworm was apparently very rare in the adult, but Dr. MacLeod showed cases in a mother, aged 23, and child,¹ and in the debate on those cases some other instances were mentioned.

¹ *Brit. Journ. Derm.*, 1911, xxiii, p. 84.

Dermatological Section.

May 20, 1915.

Dr. J. J. PRINGLE, President of the Section, in the Chair.

DEMONSTRATION OF CASES.

Case of Pemphigus Vegetans.

By J. J. PRINGLE, M.B.

THE PRESIDENT brought forward his case of pemphigus vegetans in a soldier, aged 28, previously exhibited on January 21, 1915.¹ No trace of his pemphigoid disease was present except three dry wart-like excrescences, each about the size of a sixpenny piece, in the left axilla—the remains of previously bullous and slightly vegetative lesions—and one similar smaller adherent scab on an erythematous base over the manubrium sterni. Marking the seats of all pre-existing lesions on the trunk and limbs there was still some faint erythema and pigmentation. The mucous membrane of the mouth was natural and at no part of the body was there any indication of active disease. The temperature was normal and the general health excellent.

Before such a consummation had been attained the clinical history of the case had been, however, extremely strange and eventful. It may be briefly summarised as follows: On January 24 the temperature rose to 104° F., and an immense crop of blebs of various sizes appeared all over the body, limbs and face, as well as in the mouth. Their contents were sterile, and the examination of the urine revealed no sign of acidosis or intestinal toxæmia. On January 29 a typical erysipelatous rash appeared all over the face and involved a large portion of the scalp. This was attributed to an accidental infection from an intensely acute streptococcal abscess in an adjacent and communicating ward. The

¹ *Proceedings*, p. 70 *et seq.*

gravity of the patient's condition necessitated his removal to a special isolation ward, where he remained for three weeks, with an extremely high and irregular temperature. His erysipelas recurred—or rather relapsed—on four occasions; but no fresh pemphigus blebs appeared after the first manifestation of the erysipelas and, despite the apparently desperate condition of the patient, the erosions produced by the rupture of blebs both on skin and mucous membrane all healed rapidly and kindly. The whole of his hair fell off, leaving him totally bald. On February 26 he suddenly expressed himself as feeling quite well, and consumed an enormous mid-day meal. On March 1 his temperature abruptly fell from 103° F. in the morning to 98° F. in the evening. It remained persistently subnormal till his discharge from hospital on March 26, except on March 11, when it rose to 101° F. at mid-day; and it was on this date that the abortive vegetative lesions, still present in the left axilla, appeared as flaccid blebs. The erysipelas was treated throughout its course by large doses of quinine and by external applications of ichthyol.

(*Post scriptum*, June 11: The patient was seen by me to-day and is still apparently quite well, his axilla now being free from disease. His hair has grown in natural luxuriance. Despite these favourable signs, I opposed his earnest desire to rejoin his regiment, as I felt no assurance as to the permanence of his "cure." No vaccine has been used since he was exhibited on January 21.—J. J. P.)

Case of Hallopeau's Pyodermite Végétante.

By DOUGLAS HEATH, M.D.

HISTORY: The patient, a well-developed and healthy-looking lad, aged 12, was taken ill with sore throat and ulcerated mouth early in January of the present year. His tongue and lips became badly affected, and the taking of food was painful. During the first week of February a "pimple" was noticed on the front of the chest, which soon broke and discharged pus and then rapidly grew in size. It became raised markedly above the skin level and a crust formed over it. This crust seemed to have separated after a time, leaving a brown stain. Several similar but smaller pustules appeared on the front and back of the chest during February, which dried up after the formation of small scabs. On March 5, 1915, he was admitted into the General Hospital,

Birmingham, under the care of Dr. Heath's colleague, Dr. Sidney Short, who had very kindly permitted the exhibitor to see him frequently and also to show him before the Royal Society of Medicine. At this time both the upper and lower lips were covered by raised white epithelium the result of confluent bullæ or vesicles, the margins of which were practically coterminous with the junctions of the skin and mucous membrane of the lips. The throat was injected and sore, but no bullæ could be seen on it or on the inside of the cheeks. The tongue was slightly eroded on its lateral margins. No vesicles were present in the nares or on the conjunctivæ. On the front of the chest was a pigmented patch of skin as large as a half-crown marking the situation of a large raised and scabbed area, which had disappeared without leaving any scar. The umbilicus and the skin around it were completely covered by a sharply raised condylomatous mass of bluish-red colour, covering an area as large as a five-shilling piece. Around this central disk-like elevation were smaller "vegetating" tumours, some of them being covered by scabs or epithelial débris. The nearest and largest of these were coalescing with the central tumour mass. Outside these again was a wide ring of small vesicles and pustules, the outermost, spreading on to the healthy skin of the abdomen, being about the size of a large pin's head. Recent vesicles were nearly always clear, but they invariably became pustular in a short time. As they increased in size they grew into very small flat bullæ and a faint pink areola developed around them. All stages of transition from the early vesicle to the vegetation were visible, and the raising of the floor of the vesicle into a little tumour could be seen to be an extremely early phase in the course of the development of the disease and to be too frequent to be only an accidental feature. On the back of the patient several similar areas of condylomatosis surrounded by rings of vesicles and pustules could be seen all running through similar stages. The legs, thighs, groins, axillæ and genital regions were unaffected.

The patient complained very little of itching or burning sensations in the skin, but the removal of the dressing caused, as might be expected, some pain. An examination of the blood by Dr. Agar gave a leucocytosis of 11,000, eosinophiles 4 per cent. The urine was faintly acid in reaction and gave a very faint haze of albumin; the specific gravity was 1020; the quantity of urine in twenty-four hours, 48 oz.; urea 1.2 per cent. The bowels were regular, but there was a slight degree of constipation. A Wassermann test gave a negative result, and no growth took place in cultures from the blood.

COURSE OF THE DISEASE.

From March 5 to May 20 the patient remained in the hospital, and in spite of fairly strong antiseptic treatment the areas of condylomatosis around the umbilicus and on the back had greatly enlarged. Fresh crops of vesicles and pustules had been constantly appearing at the spreading margins of the eruption, and these had enlarged, ruptured, and then developed vegetations on their bases, often under a small scab, but quite as often without. A similar rapidly spreading pustulo-vesicular rash had recently covered the whole of the left thumb, having

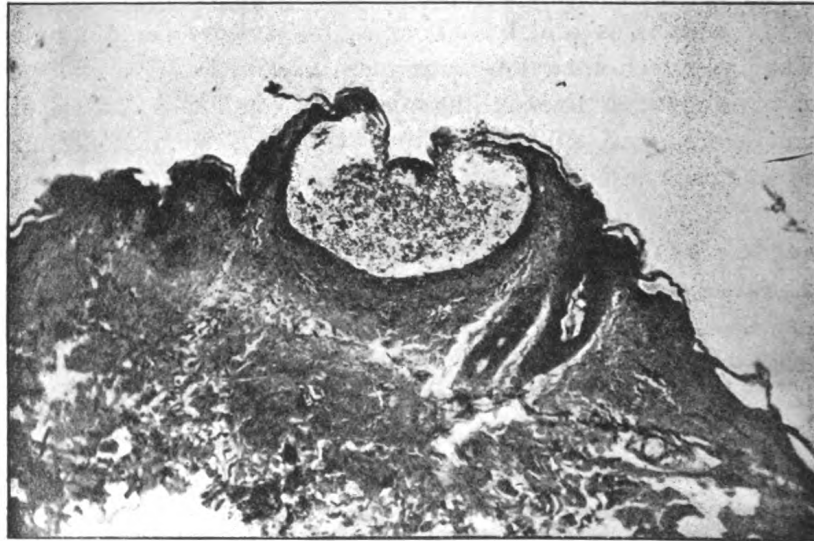


FIG. 1.

Hallopeau's pyodermite végétante. Section of early clear vesicle ($\times 75$) from the back, showing the formation of the vesicle in the outer third of the prickle cell layer. The cavity of the vesicle is filled with polymorphonuclear and a few detached epithelial cells. The corium shows marked congestion of the papillary vessels immediately underneath the vesicle, and (under a higher power) polymorphs can be seen in abundance below and between the epithelial cells of the floor of the vesicle.

started as a pustule under the nail-plate three weeks ago. On the ring-finger of the left hand, half an inch above the nail-fold, a few vesicles had also appeared, and on the middle finger of the right hand a pustule could be seen (May 15) in the centre of the nail-fold. On the back of the right arm a raised dry and scabbed area 1 in. long and $\frac{1}{2}$ in. wide

seemed to be shrinking and no vesicles could be seen around it. The front of the abdomen was now (May 18) for the most part covered by one large and continuous area of condylomatosis, which only showed signs of moisture at its margins. Similar large "vegetating" areas extended over nearly the whole of the back. These large condylomatous masses were quite firm and dry and showed no excoriated areas or purulent points, even where they were exposed to friction, as on the back. In spite of the very extensive skin disease the patient's temperature had remained normal and he invariably said that he felt perfectly well.



FIG. 2.

Hallopeau's pyodermite végétante. Section from a horny vegetation two or three weeks old. The section shows a marked irregular acanthosis and numerous "dry abscesses" in the prickly cell layer.

An examination of the blood on May 15 gave a leucocytosis of 23,400. The eosinophiles were present to the extent of 27·4 per cent. of the white cells, neutrophile polymorphonuclears 44·2 per cent., mononuclears 28·4 per cent. (Dr. Logie). Fluid from small pustules contained large numbers of eosinophile and polymorphonuclear leucocytes. Cultures from pustules gave *Staphylococcus aureus* and a diphtheroid bacillus of the Hoffmann type. A very early vesicle of the size of a small pin's head, with clear contents, was excised from the

back and examined microscopically. From the section it could be seen that the vesicle had started in the outer third of the prickle cell layer, unaffected cells of which layer formed the floor of the vesicle cavity. The roof of the vesicle seemed to consist chiefly of the horny layer, which in this region of the back was naturally very thin. The cavity of the vesicle contained numerous polymorphonuclear cells. The lower two-thirds of the prickle cell layer underlying the vesicle stained normally and showed no œdema of the cells or intracellular œdema. The corium, however, directly underneath, was very œdematous, and the collagen fibres were widely separated. A moderate exudation of wandering cells could be seen in the region of the papillary body.

A portion of one of the large vegetating masses from the back was kindly examined by the Hospital Pathologist, Dr. Logie. He reported: "The specimen shows a proliferation of the epidermis over a granulomatous condition of the corium. Mitotic figures occur in the deep layer of the epidermis. The prickle cells are somewhat separated and the 'prickles' well seen, and there is a good deal of downgrowth of epithelium. Both in the epidermis and in the corium small abscesses occur with numerous polymorphonuclear cells and detached tissue elements (squamous cells, &c.). The corium shows patches of infiltration with plasma cells, lymphocytes and proliferated fibroblasts, and endothelial cells, and the lymphatics are dilated." Dr. Logie was struck by the fact that the histological appearances of the section closely resembled those seen in blastomycosis, but he was unable to find any yeast cells.

REMARKS.

The case above described seemed to belong to the class of pemphigus vegetans or dermatitis vegetans, although it more closely resembled in its early stages dermatitis herpetiformis than pemphigus. Similar cases had been described by Hallopeau, Hartzell, Jamieson, Fordyce, W. A. Pusey, and others. Hallopeau called the affection pyodermite végétante, and considered it was really a form of pemphigus vegetans. It seemed to be generally regarded as a mild form of that affection, whilst a few regarded it as more related to dermatitis herpetiformis. It was of course well known that cases of the latter affection might now and then show a vegetating tendency as might many skin diseases, but it was as a rule more an accidental complication than a regular feature of the disease. In the case he had described, a condylomatosis of the base of the pustule seemed to be the rule rather than the exception, and he thought

it could fairly be regarded as a characteristic feature of the disease. Secondary infection with pus cocci was generally supposed to be the cause of this vegetating tendency in cases such as he had described and in similar cases. He did not personally think there was any satisfactory evidence to support this view. He had seen severely suppurating dermatitis herpetiformis and pemphigus without any condylomatosis, and the failure of local antiseptic treatment—even allowing for the thick resistant epithelium—was, he thought, against the view that secondary pus infection kept up the disease.

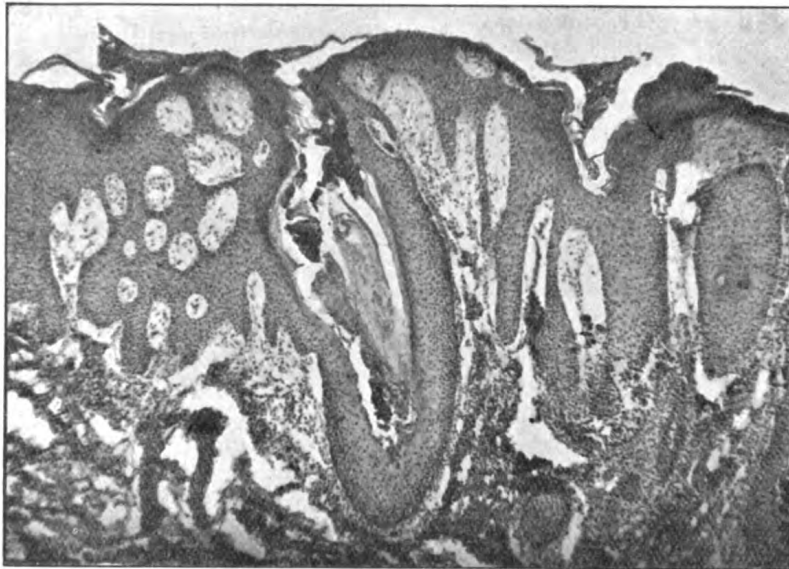


FIG. 3.

Hallopeau's pyodermite végétante (? dermatitis herpetiformis vegetans or pemphigus vegetans). Sections from vegetations of same age, showing great thickening of prickly cell layer; abscesses in superficial and deep parts of the epidermis; very dilated lymph spaces in corium.

Treatment: In spite of local treatment with weak sulphur ointment, perchloride of mercury and peroxide of hydrogen, the disease had rapidly progressed. Increasing doses of arsenic given internally had failed to check the spread of the vesicles and it had been discontinued for the past fortnight. Pil. saponis co., 5 gr., had been given for the past week and seemed to be slowly checking the disease, although it was as yet too early to be certain of this.

Case of Dermatitis Herpetiformis.

By J. M. H. MACLEOD, M.D.

THE patient was a man, aged 68, who had suffered from the eruption for two years. The early history of it was typical of dermatitis herpetiformis, the lesions consisting of itchy papulo-vesicles tending to be grouped in clusters and associated with intense pruritus. At the time of exhibition the skin of the trunk and limbs was covered with small white scars, excoriations, and an increase of pigmentation. The lesions were most marked about the buttocks and upper parts of the thighs, the scars being the result of papules having been dug out by the finger-nails to relieve the intense irritation.

Case for Diagnosis. ? Hydroa Gestationis.

By J. M. H. MACLEOD, M.D.

THE patient was a woman, aged 42, of a highly nervous disposition, with a bullous eruption affecting the arms, hands, legs, and mouth. The bullæ were flaccid and varied in size from a split pea to a filbert nut, and developed on apparently healthy skin. The original lesion had been a reddish patch which had appeared on the umbilicus during a pregnancy, the bullous eruption having developed soon after the child was born. This happened seven years ago. The eruption disappeared after being present for several months, but returned a year ago and had persisted ever since. There had never been much itching. An examination of the blood on May 3, at which time a few new lesions were appearing, showed 4 per cent. of eosinophiles. There was no marked tendency to grouping, and the involvement of the mouth and absence of itching pointed rather to chronic pemphigus or erythema bullosum than to dermatitis herpetiformis.

**Case of Recurrent Bullous Eruption of the Hands and Feet
(Acropompholyx).**

By GEORGE PERNET, M.D.

THE patient was a woman, aged 49, who had had a recurrent bullous eruption of the hands and feet for twenty-nine years. She was first seen by the exhibitor at the West London Hospital in June, 1913, who referred her to the dental surgeon for oral sepsis and bad teeth. She had been attending at the hospital previously, and she had been given mist. hyd. biniod., and had been treated locally. The exhibitor ordered liq. arsenicalis, 4 minims, ad. 1 oz. t.d., p.c. The patient steadily improved, the recurrences becoming milder and milder, and less frequent. On March 23, 1914, she attended again, stating she had had no bullæ for three months. She kept well until February, 1915, when she had one or two small bullæ on the right sole. On May 11, 1915, there was a recurrence on the left sole, but the hands had remained free from the trouble. There was no reason to look upon the case as having anything to do with syphilis, though that was apparently the impression before the patient came under the exhibitor's observation, and would account for the fact that mist. hydrarg. biniod. had been ordered before she was put on the mist. arsenicalis, which certainly had a controlling effect. Etiologically, the oral sepsis had, no doubt, a good deal to answer for.

Case of Pompholyx.

By DAVID WALSH, M.D.

THE patient, a female, aged 48, unmarried, a seamstress, had suffered for seven or eight years on and off with a bullous eruption of the hands. The attacks usually began in spring. On one occasion she had a few bullæ on her feet, and the patient said she had "water-blisters" on her ears some years before the hands were attacked. The blisters did not rupture spontaneously, but dried up. They appeared on the palms, backs of the hands and wrists, and on all parts of the fingers; the nails were not shed. Sometimes there was a good deal of irritation. While under observation during the present attack the left hand became septic and was much swollen. Recent bullæ were found to be sterile when tested on ordinary laboratory media.

Three Cases of Dermatitis Herpetiformis.

By W. KNOWSLEY SIBLEY, M.D.

Case I.—S. L., a stout widow, aged 59, tailoress by occupation. The lesions commenced in July, 1914, and first appeared about fourteen days after a shock from the loss of her husband who was killed in an accident. The condition was preceded by a great irritation and burning of the skin, after which bullæ appeared first on the forearms and then on the legs, and after a time extended more or less over the whole body. At one period they were very troublesome in the mouth. On January 26, 1915, *Staphylococcus aureus* was isolated in pure culture from a recent bulla. An autogenous vaccine was prepared and injections given at weekly intervals, commencing at 100 millions, up to 800 millions, after which the bullæ ceased to appear, and the patient had remained well ever since.

Case II.—G. R., a frail little girl, aged 9, whose parents were living and well; she had five brothers and sisters who were all healthy. The eruption commenced in August, 1914, and was stated to have begun as a herpes on the lips. Shortly afterwards small bullous lesions appeared grouped on various regions of the body. At first the skin was very irritable and uncomfortable; after a few months the cutaneous symptoms subsided. A considerable increase of pigment was present in most of the scars from old lesions. She had been a patient in a general hospital for a period of six months, during which time she had suffered from perpetually recurring vesicles and small bullæ on most of the cutaneous surfaces. Many of the lesions, especially about the face, were tending to become pustular and leave a dry, scab-like impetigo, but they were little if at all influenced by applications of mercurial ointment. Some six weeks ago the *Staphylococcus albus* was isolated from a recent bulla, and an autogenous vaccine prepared. She had now had five injections at weekly intervals, commencing at 100 millions increased up to 500 millions. The patient was apparently improving. Report of blood examination, May 20, 1915: Red blood cells, 4,320,000 per cubic millimetre; white blood cells, 5,100 per cubic millimetre. Differential leucocyte count: (1) Polymorphonuclear cells, 65 per cent.; (2) lymphocytes, small, 25 per cent.; (3) lymphocytes, large, 4.5 per cent.; (4) eosinophiles, 4.5 per cent.; (5) basophiles, 1 per cent.

Case III.—A. R., a fairly well nourished little girl, aged, 12, both of whose parents were living and well. The patient was the seventh child in a family of nine, all of whom were living and well. The lesions commenced on the forearms some eighteen months ago, and the patient had never been free from vesicles or blebs on some part of the body ever since. The face, chest and back, palms and soles were the only parts which had not been affected at some time or another, nor had lesions been present in the mouth. At the present time the lesions were most extensive over the dorsa of the feet, which were covered with vesicles and blebs, many of which were ruptured and had made walking most painful. There was also an extensive outbreak about the external genitalia. Pigmented scars were scattered about in other regions, especially on the arms, legs and thighs. At one time there was considerable skin irritation, but this had been less of late, and the general health had not been much affected.

Case of Dermatitis Herpetiformis.

By E. G. GRAHAM LITTLE, M.D.

THE patient, an elderly lady, sent to the exhibitor by his colleague Sir Anderson Critchett, in November last, when she said she had had the eruption for a week. At that time there was a very extensive bullous and pustular rash, almost varioliform in aspect, with characteristic herpetiform grouping of lesions and intensely itchy and inflamed. She had never previously had any similar eruption. She was treated in the usual manner by rest in bed and increasing doses of arsenic and made a satisfactory improvement, but had never been absolutely free from fresh crops of vesicles since November. Latterly the eruption had been papular and urticarial rather than vesicular, and there were large patches of highly inflamed reddened skin. Intense itching had all along been a prominent feature, but otherwise the general health had suffered but little, and for her age, which was 60, she was a reasonably healthy woman. The case illustrated an interesting character of the disease—the mutation in type of the eruption during a comparatively short period of observation.

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Case of Dermatitis Herpetiformis in a Boy, aged 8.

By E. G. GRAHAM LITTLE, M.D.

THE patient had been previously exhibited to the Section ¹ and was recorded in the April issue of the *British Journal of Dermatology*. Since that date he had been given 3-minim doses of liq. arsen. three times a day, and the eruption had faded away rapidly and there had been no recurrence. But some three weeks after the treatment by arsenic had been instituted there had appeared in the position of the sixth dorsal segment on the left side a small patch of typical herpes zoster, in the middle of the half-girdle axis. The appearance of this patch when there was complete quiescence of the vesicular eruption of dermatitis herpetiformis, the restricted distribution, and absence of itching in the patch, offered means of distinguishing the vesicles of zoster from the earlier disease. This eruption might be ascribed to the administration of arsenic, but there had been cases of zoster following dermatitis herpetiformis which could not be put down to the influence of arsenic, so that one could not decide which cause was operative here.

**Case of Chronic Septic Papilloma which had originated
apparently in a Bullous Eruption.**

By E. G. GRAHAM LITTLE, M.D.

THE patient was a soldier who gave the following history: Six months ago he was cleaning down a horse, when the animal swerved heavily against the man's leg, which was covered with the trouser at the time. The part began to itch an hour afterwards and by night-time was reddened. Blisters formed on it within the subsequent five days, and he broke these from time to time, fluid being emitted. Warty masses began to show on the site of the injury, and at the present time there was a very extraordinary eruption of partly discrete papillomatous masses with a raised, fleshy red base covered by a dense filiform warty growth, the whole part so affected occupying the lower third of the

¹ *Proceedings*, p. 131.

anterior surface of the left leg over an area about 3 in. by 2 in. in size. There was no evidence or history of venereal disease. It was proposed to excise the whole mass, and a report on the histology of the growth would be furnished later.

Dr. GRAHAM LITTLE also exhibited a microscopical section of a portion of skin taken from the hairy part of the axilla of Mrs. R., a private patient shown at the April meeting of the Section, with the diagnosis "*Folliculitis decalvans et atrophicans*."¹ The possibility of the affection of the axillæ, as distinguished from that of the scalp, being due to an early stage of Darier's disease was suggested at the meeting. This suggestion did not receive support from the histological appearances: there were no "*corps ronds*." The clinical aspect of atrophy of the hair was confirmed by the absence of hair-shafts in the section. Follicular and perifollicular keratosis was present.

Case of Dermatitis Herpetiformis.

By J. H. SEQUEIRA, M.D.

D. M., a TAILORESS, aged 20, had suffered from recurrent attacks of dermatitis herpetiformis during the past two years. The eruption had chiefly occurred on the ankles and dorsum of the foot and adjacent parts of the legs, and on the forehead. The forearms had also been affected. The lesions consisted of erythematous patches, vesicles and small blebs, usually in groups. The patient complained of intense itching, especially before the vesicles actually appeared on the surface. The general health was usually good. There had been symptoms of dyspepsia and there were several carious teeth, which had been removed. On two occasions the blood count showed no increase of eosinophile cells—polynuclear neutrophiles 52, eosinophiles 1, small lymphocytes 22, large lymphocytes 22, large hyaline cells 3 per cent. The cellular contents of an apparently clear vesicle showed polymorphonuclear neutrophiles and eosinophiles, the former predominating.

¹ *Proceedings*, p. 139.

Case of Recurrent Eruption on Buttocks and Thighs.

By S. E. DORE, M.D.

THE patient was a boy, aged 9, who had suffered from a recurrent eruption on the buttocks and posterior and lateral aspects of the thighs for the past four and a half years. The lesions consisted for the most part of scaly erythematous patches, some of which were excoriated or covered with crusts. Occasionally a blister had been noticed by the mother. There was no herpetiform grouping and itching was not complained of. The eruption was said to come out in crops and to be more severe in the spring of the year. The patches were followed by pigmented stains but there was no scar formation. The glands in the groins were markedly enlarged. There were no lesions in any other part of the body. The boy was weakly and neurotic and had suffered from nocturnal enuresis for twelve months, but his mother thought this had nothing to do with the causation of the eruption, which had been present for a comparatively short time and was not made worse thereby.

Case of Pemphigus in a Child.

By R. E. SCHOLEFIELD, M.B.

PATIENT, a child, aged 9 months. The trunk and limbs were covered with small tense bullæ, which had come out in crops since the child was a few weeks old. The child was otherwise in good health. The bullæ appeared on healthy skin with very little surrounding inflammation.

Case of Spurious Erythromelalgia.

Remarks on Non-syphilitic Arteritis Obliterans in Jews.

By F. PARKES WEBER, M.D.

THE patient, S. M., aged 38, a Jewish tailor in London, was a well-nourished man, of medium size and weight, who said that his present trouble commenced three years ago, and that otherwise (excepting for hæmorrhoids, which had been removed by operation five years ago) he had enjoyed good health. When only 1 year old

he had been brought by his parents from Prague (Bohemia) to London, and had remained in England since then. He denied ever having had any kind of venereal disease and his blood serum (April, 1915) gave a negative Wassermann reaction for syphilis. He had always been very moderate in regard to alcohol. In regard to tobacco he stated that he had been in the habit of smoking cigarettes, on the average eight or nine daily.

His present trouble, which, as mentioned above, commenced three years ago, was at first confined to the left lower extremity. The left foot was evidently then affected in a similar way to that in which the right foot was now affected. The distal portion of the foot was red or cyanosed and he suffered from a kind of "intermittent claudication" on walking. That is to say, he had to stop walking every five minutes or so on account of pain in the sole of the foot, which, however, rapidly passed off on resting for a few moments. About two years later the symptoms improved in the left foot, in fact they seemed to disappear, but similar symptoms developed in the right foot, and these had persisted since then. He could not walk more than about five minutes without inducing a pain in the sole of the right foot, which obliged him temporarily to stop walking till the pain went off, which it very quickly did. In neither lower extremity had he, however, experienced the cramp-like pains in the calf-muscles, generally described in cases of "intermittent claudication." Objectively at the present time the toes of the right foot appeared red or bluish-red (cyanosed). The exact colour varied according to position, surrounding temperature, &c., but the colour did not fade, as it did in some cases, if the patient repeatedly flexed and extended his ankle-joint. That phenomenon which by Erb had been termed "Oehler's sign," was apparently not very rarely found missing. Recently an ingrowing toe-nail had had to be removed, on account of painful ulceration, from the right great toe, but this slight operative interference, in spite of the ischæmic circulatory condition, had not been attended by any untoward result. The left foot was at present of natural colour, but in neither foot had any pulsation been felt in the *arteria dorsalis pedis* or in the other pedal arteries. Normal pulsation could be felt on both sides in the femoral artery at the groin. Röntgen-ray examination (Dr. J. Metcalfe, May, 1915) showed nothing abnormal in the phalangeal or metatarsal bones of either foot. No wasting could be detected in either lower extremity. The knee-jerks were brisk, but the plantar reflexes could not be obtained. There was no anæsthesia. There was nothing abnormal in regard to

the radial pulse on either side. The brachial systolic blood-pressure was 120 mm. Hg. There was no evidence of any disease in the mouth, in the thoracic or abdominal viscera, or in the central nervous system.

The recent general treatment had included rest in bed, ordinary diet, and the internal use of iodipin. The local treatment of the right leg had consisted in the employment on alternate days of a hot-air bath and of diminution of the atmospheric pressure. For the latter purpose the lower limb up to the knee was fastened into a glass box, connected with an air pump for sucking out the air, such as was sometimes used for Bier's passive hyperæmia methods of treatment. Unfortunately very little improvement had as yet been obtained since the commencement of the treatment in April, 1915. Aspirin was useful, as it diminished the pains, which occasionally were bad enough to prevent sleep at night. Such more or less continuous pains, which often caused sleeplessness and so gradually wore the patients out, had to be distinguished from the above-mentioned pains of the "intermittent claudication type."

REMARKS.

Dr. Weber regarded the case as a typical example of the kind of non-syphilitic arteritis obliterans (the "thrombo-angiitis obliterans" of Leo Buerger), of which he had previously repeatedly demonstrated examples at the Royal Society of Medicine (chiefly at the Clinical Section). The affection occurred almost exclusively amongst adult Jewish males, of young or early middle age, especially those from the eastern portions of Central Europe; a point to be noted in the present case was that the patient was only 1 year old when he migrated to England. The affection was not absolutely limited to the poorer classes; Dr. Weber had met with one case, and knew of another, in which the patient was in very good financial circumstances. In nearly every case there was a history of habitual cigarette smoking and in some cases the patients, owing to being employed in cigarette factories, had been able to smoke large numbers of cigarettes daily without paying for them. In one or two instances in which the favourite cigarettes patronised by the patients had been chemically examined, nothing special had been discovered about them, and it was extremely improbable that the cigarette smoking was more than a contributory factor in inducing the disease. The essential cause of the disease still remained unknown. In the typical cases met with in London evidence (by the history, Wassermann reaction, &c.) of acquired or inherited syphilis was remarkable for its almost invariable absence. The blood-

pressure was seldom high, and there were seldom signs of general arterio-sclerosis or of chronic interstitial nephritis. Usually one of the lower extremities was the site of the first symptoms, but the other lower limb was often attacked later on, and occasionally one or both upper extremities or other part of the body became involved.

The affection progressed by periods of exacerbation, alternating with long periods of intermission. Surgical interference (amputations, which should not be performed too high up), when it became necessary, was chiefly called for owing to intolerable pain and insomnia during exacerbations associated with ischæmic ulceration, or owing to the occurrence of acute septic complications. Amputation seemed, according to Leo Buerger's publications on the subject, to have been much more frequently resorted to amongst the sufferers at the Mount Sinai Hospital at New York than amongst those in London. In regard to the avoidance of amputation, much depended on whether the patient had sufficient patience and powers of endurance to carry him over the periods of painful exacerbation of the disease. The affection was sometimes complicated by attacks of phlebitis and venous thrombosis, but these were generally recovered from without the patient's condition having been obviously rendered (permanently) worse.

"Intermittent claudication," when it occurred in one or both lower extremities, was generally described as a cramp-like pain in the muscles of the calf or in the small muscles of the foot, induced by walking, but rapidly recovered from on resting, and then recurring at more or less regular intervals, if after resting the patient tried to walk again. This term, "intermittent claudication," should not be regarded as synonymous with the disease under consideration; it was only a symptom of the disease, and likewise occasionally occurred as an important symptom in other diseases, such as syphilitic arteritis, and in conditions resulting from traumatism of arteries. Moreover, it played no part in the symptomatology of very bad cases—i.e., when the patients were absolutely unable to get about at all.

The term "erythromelalgia," originally introduced by Weir Mitchell, had been employed for various conditions of vascular or nervous or trophoneurotic origin, including even some cases with cyanosis and swelling of extremities of only functional origin. Etymologically it was well adapted to be applied to the class of cases under consideration, meaning as it did *a painful condition of an extremity associated with redness (or cyanosis)*. But the cases under consideration were almost certainly not of the kind to which the term "erythromelalgia" had been originally applied.

In regard to diagnosis, conditions of one or both lower extremities resulting from arterial obstruction of other kinds (especially syphilitic cases) were those most likely to be confused. Cases of Raynaud's syndrome and of sclerodactylia could seldom lead to such a mistake, though sclerodactylia of one or both feet did of course occasionally occur in adult Jewish males, of young or early middle age, and in some of those cases pulsation could not be felt in any of the pedal arteries.¹

Case of Madura Foot.

By H. C. SEMON, I.M.S., M.D.

THIS case was demonstrated by kind permission of Lieut.-Colonel F. F. Perry, I.M.S., C.O., Lady Hardinge Hospital, Brockenhurst, with cultures and microscopic sections of the diseased tissues, and presented the following salient features: The patient was a sepoy, aged 26, and was born near Rai Bareli, in the North-West Provinces of India, where "mycetoma pedis" was not so common as it was in Southern India and Madras. In January of the current year a heavy ammunition box fell on his right foot, but he did not report himself as suffering from the subsequent swelling for about six weeks. At the Base Hospital in Boulogne amputation was suggested, but patient refused it, and was sent to the above hospital for further observation and treatment. There was very little doubt, of course, that the disease was contracted in India before patient left for the Front in October last, and that the accidental injury on which he laid so much stress was merely coincident with its primary clinical manifestation. The swelling did not seem ever to have completely subsided, and about two months after the injury he began to be troubled with itching, and then a clear discharge developed. It had continued on and off ever since. There has been little or no pain, and no temperature throughout. The Wassermann reaction was negative, and there was no abnormality of the genito-urinary or other systems.

The diseased foot presented, briefly, the following points: There was an extensive area of darkened skin over the dorsal and tibial aspects of the swollen right foot, situated in which were soft protuberant masses of dusky purple granulations. These exuded clear

¹ See F. P. Weber, "Two Cases of Sclerodactylia," *Brit. Journ. Derm.*, Lond., 1915, xxvii, p. 113.

fluid, and sometimes pus, from sinuses which had not yet been proved to extend as deep as the tarsus. In the discharge were present almost invariably the minute black granules which both microscopically and culturally conformed to a generic type of fungus known as mycetoma, of which Castellani described no fewer than fifteen distinct pathogenic varieties in his text-book of tropical medicine. On the tibial and plantar aspects there were a few small dark points which occasionally broke down and discharged the same kind of fluid. There was a



The exuberant granulation tissue is well shown. The melanoid discoloration of the skin on the dorsum is not photographically obvious owing to the natural pigment. The mouths of the sinuses are concealed in the clefts between the tumours, which have not developed sufficiently to obliterate the longitudinal arch.

progressive tendency for the arch of the foot to become obliterated, and there was increasing difficulty in walking.

No radical treatment of any kind had yet been attempted, and the literature recorded but few cases, and these only of a special variety, that had yielded to curetting, even in the very early stages. The cases had almost invariably succumbed to secondary septic infection after some years if not treated by amputation in good time.

DISCUSSION ON THE PEMPHIGOID ERUPTIONS.

Opened by J. M. H. MACLEOD, M.D.

I AM deeply sensible of the honour which you have conferred upon me by inviting me to open the discussion on the pemphigoid eruptions, but at the same time I feel that it is rather through the inexorable progress of time than from any special aptitude that this task has fallen to my lot, and would fain it had been entrusted to someone more capable than myself of doing it justice.

The name "Pemphigoids," as far as I can ascertain, was introduced into dermatological literature by Besnier, and was made familiar in this country by Colcott Fox, who employed it as a synonym for dermatitis herpetiformis in his exhaustive article in Allbutt and Rolleston's "System of Medicine," 1911, ix, p. 455. The term was meant to signify that group of eruptions which Tilbury Fox included under the heading of "Hydroa" in the posthumous paper published by Colcott Fox in 1880 in the *American Archives of Dermatology*, and which Duhring re-christened "Dermatitis herpetiformis" in 1884, and Brocq named "Dermatite polymorphe douloureuse" in 1888.

The term "Pemphigoids" is a somewhat unfortunate one, as it simply signifies an eruption characterised at some phase of period in its course by bullæ and having a resemblance to chronic pemphigus. Consequently it has been used in a loose sense by different writers to include a number of bullous eruptions, such as chronic pemphigus, acute pemphigus, dermatitis herpetiformis, pemphigus vegetans, erythema bullosum, and pemphigus neonatorum. Here, however, I propose to follow Besnier and Colcott Fox, and to restrict the use of the term to the dermatitis herpetiformis group, excluding from it cases of pemphigus neonatorum and pemphigus acutus, which are septic infections due to the local inoculation of certain micro-organisms—most probably a streptococcus in the case of the former, and a diplococcus of the type described by Demme and Dähnhardt in the case of the latter.

Eruptions of the dermatitis herpetiformis type have been described in the past under a great variety of names. Of these the most important are pemphigus pruriginosus (Hebra), indicating especially the subjective symptoms associated with the disease; pemphigus circinatus from a special phase of the eruption; herpes pemphigoides from the

herpetiform grouping of the lesions; and herpes gestationis, herpes gravidarum, and hydroa gestationis, from its not infrequent occurrence in relation to pregnancy.

The history of the isolation of this group by Tilbury Fox, Colcott Fox, Duhring, Brocq, and others, is so well known and has been described in such detail that it would be out of place to labour it here, and I will pass on to a consideration of the characteristic features of the eruptions which may be included under the heading of pemphigoids in its restricted sense, and to consider the relation of the group to other form of bullous dermatitis.

Before discussing those matters I would remind you that in 1898 a debate was held on this subject at a special meeting of the Dermatological Society of London, and introduced by Dr. Allan Jamieson, of Edinburgh. This was the first of the series of debates on subjects of special dermatological interest which formed such an important part of the work accomplished by that Society. On reading the report of the introductory remarks and the subsequent discussion I have been greatly struck by the small advance which has been made in our knowledge of the pemphigoids since that date, for, unless in some minor details, what was said then practically represents the position to-day.

My experience of the pemphigoid group of eruptions is comparatively limited, as I have had in all only twenty-five cases, of which seventeen were in hospital and eight in private practice. To increase the field of my statistics, however, I have analysed all the cases of which there are records in the Skin Department of Charing Cross Hospital between 1895 and 1906, when Dr. Galloway was in charge of the Department, and have also made a brief synopsis of the cases which have been exhibited at the Dermatological Society of London, the Dermatological Society of Great Britain and Ireland, and this Section of the Royal Society of Medicine, up to the present date. In this way I have got more or less complete notes of over 100 cases, but, unfortunately, in a considerable number of them the descriptions are so scrappy as to be of little value.

In collecting the hospital cases the rarity of the disease became evident, for out of about 12,000 cases of skin disease in the Charing Cross Hospital records between 1895 and 1914 there were only twenty-three cases—that is, 0·19 per cent.—while out of 11,179 cases at the Victoria Hospital for children during the last ten years, there were only three cases—that is, 0·02 per cent.—and it is doubtful whether two of these should not have been labelled chronic pemphigus.

CASES RECORDED IN THE "BRITISH JOURNAL OF DERMATOLOGY," 1889 TO 1914, MANY OF WHICH WERE EXHIBITED AT THE DERMATOLOGICAL SOCIETY OF LONDON, DERMATOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND, AND SECTION OF DERMATOLOGY OF THE ROYAL SOCIETY OF MEDICINE.

Dermatitis Herpetiformis.

Name of exhibitor	Date and reference in <i>Brit. Journ. Derm.</i>	Sex	Age at onset	Type of eruption	Blood changes	Course	Remarks
Sangster	1885	—	—	Vesicular, clustered, and urticarial lesions; much pruritus	—	—	Recurred every few weeks
Mackenzie, S.	1886	—	—	Vesicles in herpetiform groups, erythematous patches; intense irritation	—	—	Controlled by arsenic; opium no effect
Waren Tay	1890	M.	19	Papulo-vesicular, grouped; moderate itching	—	—	Improved by application of sulphur
Payne	1893	M.	55	No details	—	—	Three previous attacks
Mackenzie, S.	1893, v. 5	M.	37	Multiform papules, vesicles, bullæ, erythematous patches; groups of vesicles on red bases; urticarial lesions; itching not marked	—	—	Came on first after sleeping in damp bed
"	1893, v. 6	M.	40	Vesicles, bullæ, papules; intense itching; mucous membranes not attacked	—	—	Followed a chill from being overheated; repeated attacks; improved under quinine
"	1893, v. 7	F.	44	Papules, vesicles, urticaria (spontaneous and factitious); burning, itching	—	—	Patient of a nervous temperament; improvement from antipyrin
"	1893, v. 10	M.	68	Erythematous patches surmounted by groups of vesicles on face, neck, and trunk	—	—	Repeated attacks
"	1893, v. 10	M.	40	Red macules and vesicles widely distributed; much irritation	—	—	—
"	1893, v. 12	M.	16	First attack chiefly bullæ, second attack red macules, vesicles; much itching	—	—	Complete remissions between attacks

"	1893, v, 13	M.	44	Eruption chiefly bullous; severe itching and tingling	—	—	—	—
West, S.	1894, vi, 183	M.	22	Vesicles asymmetrically distributed; great irritation	—	—	Duration two years, with remissions of about three weeks	—
Morris, M.	1894, vi, 239	M.	28	Bullæ on extensor aspects of limbs, erythematous patches and vesicles	—	—	—	—
Galloway, J.	1895, vii, 191	F.	69	Circinate erythematous patches with central bullæ; irritation slight	—	—	Duration four years	—
Cavafy	1895, vii, 212	M.	36	Papules, patches, vesicles, excoriations; much irritation	—	—	Subject to spontaneous remissions	—
Pringle, J. J.	1895, vii, 357	M.	6	Bullæ, vesicles, papules, urticarial lesions	—	—	—	—
Mackenzie, S.	1896, viii, 91	M.	27	Papules, red - margined vesicles, bullæ; followed by pigmentation	—	—	Developed after taking arsenic to promote hair-growth	—
Duckworth, D.	1896, viii, 218	F.	60	Bullæ, erythema, vesicles; intense itching and pain	—	—	—	—
Morris, M.	1896, viii, 278	—	11 weeks	Widespread bullous eruption; two small vesicles on tongue	—	—	—	—
Fox, Colcott	1896, viii, 478	F.	—	Gyrate vesicular eruption; lesions spread excentrically like herpes	—	—	—	—
Pringle, J. J.	1896, viii, 483	M.	75	iris or impetigo herpetiformis	Eosinophile cells in blood	—	Recurrences	—
Liddell, J.	1896, viii, 385	F.	52	Erythema, urticaria, vesicles, bullæ; intense irritation	—	—	Recurrent attacks; original attack followed chill and pains in the knees	—
Fox, Colcott	1896, viii, 179	M.	42	Bullæ, gyrate figures, vesicles, concentric rings; burning and itching	—	—	—	—
Abraham, P. S.	1897, ix, 202	F.	19	Inflammatory patches, several attacks of vesicles; marked itching; herpetiform grouping	—	—	Developed after a feverish chill	—
"	1897, ix, 285	M.	38	Erythematous patches and bullæ; intense pruritus	—	—	Recurrent attacks	—
Manson, P.	1897, ix, 97	M.	29	Vesicles	—	—	Recurrent attacks, controlled by arsenic	—
				Widely distributed vesicular eruption; extreme irritation	—	—		

Dermatitis Herpetiformis—(continued).

Name of Exhibitor	Date and reference in <i>Brit. Journ. Derm.</i>	Sex	Age at onset	Type of eruption	Blood changes	Course	Remarks
Morris and Whitfield	1897, ix, 213	F.	40	Successive vesicular eruptions; intense burning; mucous membrane of mouth affected in each attack	4.9 per cent. eosinophiles in blood; 12.0 per cent. when attack at height	—	—
Hope, Grant, for Abraham, P. S.	1898, x, 17	F.	—	Papulo-vesicular eruption; extreme irritation; few blisters on red base	—	—	—
Abraham, P. S.	1899, xi, 123	M.	—	Erythematous patches, vesicles, papules; intense pruritus; herpetiform arrangement	—	—	—
Pringle, J. J.	1900, xii, 19	M.	57	Gyrate lesions and circinate; scales present at the margins; vesicles; moderate itching	—	—	—
"	1900, xii, 20	F.	72	Scattered bullae, acuminate pustules; no marked irritation	—	—	—
Galloway, J.	1900, xii, 206	M.	4	Papules, vesicles	—	—	Three remissions
Pernet, G., for Radcliffe-Crocker	1901, xiii, 102	M.	47	Raised patches covered with vesicles; much irritation	—	—	Several previous attacks
Morris, M.	1902, xiv, 267	M.	55	Red patches, bullae, vesicles; mucous membrane of mouth involved; burning and itching	—	—	Attributed to worry consequent upon unemployment
Pringle, J. J.	1902, xiv, 304	F.	2	Herpetiform grouping of vesicular lesions, sometimes circinate arrangement; no itching	—	—	Two remissions
Little, G.	1902, xiv, 425	F.	10	Vesicles, bullae, papules; irritation slight	Eosinophilia, 4.7 per cent.	—	Recurrences
Abraham, P. S.	1902, xiv, 472	F.	—	Erythematous areas, bullae	—	—	Doubtful impetigo herpetiformis; much worry; first appeared after death of husband
Galloway, J.	1903, xv, 24	M.	28	Papules, vesicles, herpetiform grouping followed by pigmentation	—	—	Associated with herpes zoster of tenth and eleventh dorsal areas

Pringle, J. J.	1903, xv, 211	F.	47	Papules, ringed pigmentation; intense irritation	—	—	Highly neurotic
Little, G.	1903, xv, 409	F.	3	Vesicles on red base, papules	—	—	—
"	1904, xvi, 76	M.	14	Papules, vesicles, herpetiform grouping, pigmented patches; much itching	—	—	Poorly nourished
Pringle, J. J.	1905, xvii, 306	M.	27	Vesicles on erythematous bases, becoming pustules, herpetiform grouping; a few lesions on buccal and palatal mucosa, marked conjunctivitis; severe pruritus	—	—	Repeated attacks; subject to hystero-epileptic attacks; arsenic produced exacerbations of all manifestations; intermittent
Little, G.	1906, xviii, 436	M.	8	Small grouped vesicles, large isolated bullæ; vesicles on buccal mucous membrane	15 to 16.5 per cent. eosinophiles	—	Two attacks; first followed accidental sudden immersion in water
Dawson, G. W.	1906, xviii, 151	M.	17	Recurrent vesicular eruption; intense pruritus	—	—	—
Hartigan, T. J. P.	1906, xviii, 184	M.	6	Figured erythematous eruption with bullæ distinctly grouped; no marked itching	—	—	Urine contained a substance which reduced Fehling's solution; several attacks
Little, G.	1906, xviii, 250	M.	12 (at time of exhibition)	Grouped vesicular eruption; slight itching	1.5 per cent. eosinophilia	—	Recurrent attacks, usually last several months
"	1906, xviii, 435	M.	23	Small grouped vesicles; intensely itchy	14.0 per cent. eosinophilia	—	Repeated attacks; nervous temperament; improved by arsenic
Pringle, J. J.	1907, xix, 437	M.	5	Large blebs, small vesicles, solid papules, erythema; no itching	—	—	—
Payne	1907, xix, 437	M.	55	—	—	—	Three previous attacks
Galloway, J.	1908, xx, 261	M.	23	Erythematous patches; irregular corymbose grouping; vesicle pustules	5.2 per cent. eosinophilia	—	—
Dawson, G. W.	1909, xxi, 385	M.	58	Bullæ, vesicles, grouped; intense itching	—	—	Improvement under arsenic; disappearance of eruption under injections of diphtheria antitoxin

Dermatitis Herpetiformis—(continued).

Name of exhibitor	Date and reference in <i>Brit. Journ. Derm.</i>	Sex	Age at onset	Type of eruption	Blood changes	Course	Remarks
Gardiner, F.	1909, xxi, 237	F.	8	Erythematous, bullous, vesicular; tendency to grouping	Five examinations: Eosinophilia, 5.0 per cent. 12.8 " 10.0 " 6.5 " 2.5 "	—	Had convulsive fits in in- fancy and definite signs of pulmonary tuberculosis
"	1909, xxi, 237	F.	3	Bullous eruption; began on genitals and inner aspect of thighs	Three examinations: Eosinophilia, 4.0 per cent. 8.0 " 9.0 " Eosinophilia, 11.5 per cent. 12.5 " 7.5 "	—	Two attacks; defective nu- trition
"	1909, xxi, 243	F.	7	Began with bullæ on thigh, grouped vesicles, followed by pigmen- tation	Eosinophilia, 11.0 per cent. 13.6 " 9.2 " 9.7 "	—	Course three years; con- stant recurrences; general health good
"	1909, xxi, 245	F.	4	Bullæ on chin and vulvæ, later universal, followed by pigmen- tation	—	Five years	Cleared with arsenic, but recurred
MacLeod, J. M. H.	1909, xxi, 295	M.	5	Circinate groups of papulo-vesicles; marked itching	—	—	Recurrences; came on after accidentally eating 18 gr. of grey powder
Abraham, P. S.	1910, xxii, 15	F.	10	Bullæ on raised bases; pain, pruritus	—	Five months	General health good; re- currences
McDonagh, J. E. R.	1910, xxii, 168	M.	17	Began as bullæ; mucous mem- branes of mouth, uvula, and palate affected; marked factitious urti- caria	—	—	—
Morris, M.	1912, xxiv, 148	F.	40	Type of attack varies; erythematous patches, vesicles, bullæ	—	—	Controlled by arsenic

Bunch, J. L.	1912, xxiv, 311	M.	24	Vesicles, bullæ; intense itching; followed by pigmentation	—	—	Attacks attributed to nervous strain; recurrent attacks; under two doses of veronal vesicles changed to bullæ and reverted subsequently —
Gray, A. M. H.	1912, xxiv, 420	F.	27	Grouped vesicles, surrounded by erythematous areas	—	—	—
Savatard	1913, xxv, 46	F.	57	Groups of pustules arranged in a herpetiform manner; each outbreak heralded by rise of temperature and rigor	—	—	Doubtful impetigo herpetiformis
King Smith	1913, xxv, 268	M.	27	Bullæ; began with blisters in the mouth	—	—	—
White, R. P.	1913, xxv, 45	M.	43	Bullæ, erythematous lesions, dark brown stains; much irritation	—	—	Periodic attacks
Little, G.	1914, xxvi, 165	M.	—	At first simulated erythema iris, later herpetiform grouped lesions	—	—	—
Semon, H. C.	1914, xxvi, 166	F.	41	Vesicles, bullæ, erythematous bases	Eosinophilia, 27.0 per cent.	—	General health comparatively good; highly emotional; secret alcoholic
Wilkinson, Russell	—	M.	42	Bullæ, herpetiform groups, erythematous patches, hæmorrhagic vesicles	Eosinophiles, 23.0 per cent.; lymphocytes, 12.0 per cent.	—	Treated by salvarsan; improvement reported

Herpes Gestationis.

Name of exhibitor	Date and reference in <i>Brit. Journ. Derm.</i>	Age at exhibition	Type of eruption	Remarks
Mackenzie, S.	1893, v, 4	38	Papules, vesicles, bullæ, erythematous patches; intense pruritus	Began with itching before pregnancy; blebs appeared ten days after delivery; eruption persisted with remissions afterwards
"	1893, v, 8	32	Vesicles, bullæ, papules	Occurred with first and third pregnancies, appearing about fourth month and continuing a few days after delivery
"	1893, v, 9	35	Bullæ; associated with burning pains, swelling of the joints	Occurred in seventh pregnancy
"	1893, v, 10	35	Erythema, vesicles, bullæ; most marked in the extremities	Successive attacks; at their height prior to onset of each menstruation after sixth pregnancy
"	1893, v, 11	28	Papulo-vesicles, pustules; much irritation	Doubtful, complicated by syphilis
Radcliffe Crocker	1896, viii, 23	—	Erythematous disks, papules, vesicles; previous attacks with bullæ	Six weeks pregnant; one of previous attacks just after confinement
"	1898, x, 90	—	Circinate and grouped erythema and vesicles; severe itching	Four attacks: (1) three days after delivery; (2) in sixth month; (3) in third month; (4) in seventh month
Abraham, P. S.	1899, xi, 124	—	Erythema, papules, bullæ; intense pruritus	Appeared a few days after delivery of first child and recurred after birth of stillborn second child
Morris, M.	1901, xiii, 167	31	Groups of vesicles on erythematous bases; herpetiform arrangement; large bullæ	Appeared two or three days after delivery in the last two out of eight confinements
Jones, B.	1901, xiii, 308	29	Papules, urticarial lesions, vesicles, bullæ; burning and itching	Eruption began a week before confinement; grand-mother had similar eruption in each of five pregnancies
Little, G.	1901, xiii, 419	29	Vesicles, pigmented lesions; intense itching	Appeared at third confinement; ushered in by rheumatic pains; attributed to worry
Evans, W.	1904, xvi, 339	32	Vesicles, circular patches of erythema; marked irritation	Appeared at sixth and ninth pregnancies out of nine, about four and a half months; healthy child at full term; general health good; very nervous
Whitfield	1904, xvi, 103	19	Gyrate erythematous patches, herpetiform lesions; severe pruritus	Began in first month of pregnancy

Impetigo Herpetiformis.

Name of exhibitor	Date and reference in <i>Brit. Journ. Derm.</i>	Sex	Age	Type of eruption	Blood changes	Remarks
Graham Chambers	1911. xxiii, 65	M.	36	Blisters arranged in circinate manner on reddish base	2.0 per cent. eosinophilia	Repeated attacks; patient feels ill during attacks; between attacks, health good

VICTORIA HOSPITAL FOR CHILDREN, BETWEEN 1903 AND 1914. TOTAL NUMBER OF CASES OF ALL SKIN DISEASES, 11,179.

Dermatitis Herpetiformis.

	Date	Sex	Age	Type of eruption	Remarks
MacLeod, J. M. H.	1911	F.	8	Bullæ and vesicles, red patches; no definite grouping; no subjective symptoms	Recurrent attacks
"	1911	M.	2	Vesicles and bullæ; no definite grouping or subjective symptoms	—
"	1911	F.	8 months	Vesicles, bullæ; vesicles tend to coalesce; no herpetiform arrangement; recurrent attacks	—

CASES AT CHARING CROSS HOSPITAL, BETWEEN 1895 AND 1914. TOTAL NUMBER OF CASES OF ALL SKIN DISEASES, 12,000.

Dermatitis Herpetiformis.

	Date	Sex	Age	Type of eruption	Remarks
Galloway, J.	1895	F.	77	Vesicles, bullæ, circinate erythema; sub- jective symptoms mild	—
"	1897	F.	15	Vesicles, urticarial lesions	—
"	1897	M.	26	Papules, vesicles, pustules; grouped like corymbose syphilide	—
"	1898	M.	29	Papules, vesicles; circinate arrangement	—
"	1900	M.	3	Bullæ, vesicles; corymbose arrangement; intense pruritus	Began with bullæ in the legs, vesicular eruption followed; recurrences; not controlled by arsenic
"	1900	M.	60	Papulo-vesicular type; severe pruritus	—
MacLeod, J. M. H.	1906	F.	40	Papules, vesicles, bullæ; herpetiform arrangement; severe itching	Began as a single bulla, the size of a walnut, on the leg, followed by herpetiform groups of papulo-vesicles; frequent recurrences and more or less complete remissions; not controlled by arsenic
"	1906	M.	32	Vesicles, bullæ, erythematous patches; circinate arrangement; intense itching	Repeated attacks
"	1907	F.	38	Papules, vesicles, occasional bullæ; intense irritation	General health not impaired
"	1907	F.	75	Papules, vesicles; herpetiform grouping; severe itching	Chiefly present on the limbs
"	1907	M.	66	Papules, vesicles; herpetiform grouping	Eruption preceded and accompanied by itching or stinging; subjective symptoms improved by large doses of salicin
"	1908	F.	76	Papulo-vesicles, clustered; intense itching	Lesions most profuse on arms
"	1909	M.	5	Papules, vesicles; arranged in circinate and herpetiform fashion; intense itching, almost pain	—
"	1909	F.	28	Papules, vesicles; herpetiform grouping, widely distributed; intense itching	Associated with nursing; has had four children; appeared after each one was born (herpes gestationis)
"	1909	F.	54	Vesicles, bullæ; herpetiform arrangement; itching	Subjective symptoms diminished by salicin

"	1911	M.	60	Papulo-vesicular type	—
"	1913	M.	67	Papules, vesicles, clustered; intense itching	—
"	1914	M.	68	Papules, vesicles; intense itching	—
"	1914	F.	57	Papules, vesicles; intense itching	—
"	1914	F.	34	Papules, vesicles; intense itching	—

PRIVATE CASES OF DERMATITIS HERPETIFORMIS.

	Sex	Age	Type of eruption	Remarks
MacLeod, J. M. H.	M.	70	Papules, vesicles; herpetiform grouping; intense itching, paroxysmal	Patient highly neurotic
"	F.	18	Groups of papulo-vesicles; very itchy	Nervous; no general disturbance
"	F.	74	Herpetiform groups of papulo-vesicles; intense irritation	Began about the time when a pessary was applied for prolapsus uteri; no disturbance of general health
"	M.	9	Circinate patches with vesicles at borders; mild irritation, wide distribution; no lesions on the mucosa	General health good
"	F.	52	Groups of papulo-vesicles; much itching	Began at menopause
"	M.	60	Groups of papulo-vesicles; extreme itching; originally diagnosed as eczema	Attacks alternate with neuritis
"	M.	50	Groups of papulo-vesicles, erythema; much itching, paroxysmal in character	Followed by an attack of herpes zoster
"	F.	50	Papules, vesicles; herpetiform grouping; intense itching	General health good; has had repeated attacks

CHARACTERISTICS OF THE PEMPHIGOID ERUPTIONS.

There are three cardinal features which may be said to weld the different eruptions included under this heading sufficiently closely together to suggest that they are variants of a common morbid process, namely :—

- (1) Multiformity in the eruptions.
- (2) Herpetiform grouping.
- (3) Intense subjective symptoms.

These cardinal features invariably occur at some period in the course of the affection and the absence of any one of them renders the diagnosis a matter of uncertainty

Multiformity in the Eruptions.

The multiformity in the pemphigoid eruptions is due to a number of causes, of which the most obvious are : (a) Variations in the type of initial lesion ; (b) the occurrence of several types of lesion synchronously ; (c) variations in the type of lesion occurring in different attacks ; (d) differences in the stage of evolution of individual lesions ; (e) endless differences in distribution and grouping.

The types of initial lesions which may be met with are the familiar prurigo-like papules, papulo-vesicles, vesicles, bullæ, and erythematous or urticarial patches. These patches may be level with the surface, or definitely raised, are sometimes covered with papules or vesicles grouped in a herpetiform fashion, or have a tendency to involute in the centre and give rise to circinate figures with rings of vesicles at the border, which may coalesce to form gyrate patterns.

The vesicles vary in size from a pin's head to a lentil, and may be acuminate, forming the apices of papules, or rounded, appearing on apparently healthy skin or developing on a red basis. Sooner or later in every case they are surrounded by an inflammatory halo from the growth of secondary micro-organisms in the contents. The vesicles may be isolated and irregularly distributed, but as a rule they are clustered in small groups of six or eight, or, more rarely, arranged in a circinate manner at the edge of an erythematous patch like herpes iris. They usually remain discrete, but occasionally may be closely aggregated to form multilocular bullæ. The bullæ vary in size from a lentil to a walnut but are generally about the size of a small bean ; they may develop on apparently healthy skin, or on an inflammatory or urticarial base, and may be regular in outline and unilocular or irregular

and multilocular. As a rule they are tense, but occasionally they may be so flabby as to suggest epidermolysis bullosa, or the fluid contents may be slight and the dissociation of the epidermis considerable, giving rise to a desquamating appearance recalling a mild pemphigus foliaceus. In rare instances, possibly through the growth of secondary micro-organisms, vegetations may grow up from the basis of the bullæ, especially in those situated about the angles of the mouth, anus, vulva, or groin, and cases of this nature have been described under the heading of a mild type of pemphigus vegetans from which recovery took place.

The contents of the vesicles and bullæ are at first clear and sterile, but soon become opaque and purulent from secondary infection with pyogenetic micro-organisms. The transition may be so rapid that the early clear phase may pass unobserved, and the lesion suggest a pustule d'emblée. It is those cases in which the vesicles become rapidly purulent which correspond most closely to the impetigo herpetiformis of Hebra and Kaposi.

Sometimes one type of lesion predominates, sometimes another, but as a rule several phases are present simultaneously. In some cases one type of lesion may be preserved in successive attacks, in others the type most marked in one attack may be of minor importance or altogether absent in another. In a case recently under my observation the initial lesion was a bulla about the size of a filbert nut, situated on apparently healthy skin on the leg, which was followed some days later by groups of papulo-vesicles associated with marked itching.

The most common types of lesions are pustules and vesicles which occur at some period in the course of almost every case, while in the cases which furnish my statistics bullæ were present only in 37 per cent., erythematous patches in 26 per cent., and urticarial lesions in 7 per cent.

The multiformity of the clinical picture is liable to be increased by secondary complications resulting from rubbing, scratching, and the inoculation of pyogenetic micro-organisms. In this way lichenification, white cicatrices not unlike those met with in prurigo, eczematization, or pustulation, may result. Pigmentation is also liable to follow the involution of the lesions and to vary in degree according to the intensity of the itching; in a certain number of cases the pigmentation has been determined or increased by taking arsenic.

The affected skin, as a rule, shows neither factitious urticaria nor the vulnerability from excessive acantholysis met with in epidermyolysis bullosa, in which the skin slides away on pressure—the so-called sign of Nikolsky.

Herpetiform Grouping.

Grouping of the papules, vesicles, and bullæ, in clusters similar to that in herpes zoster, is the second most constant feature and was present in almost all the cases in adults. It was absent, however, in a considerable number of the cases described as dermatitis herpetiformis in children. The groups of lesions may appear on apparently healthy skin or may be arranged on an erythematous base which is most usually formed by the coalescence of inflammatory haloes around individual papules or vesicles.

Subjective Symptoms.

The intensity of the subjective symptoms which may precede or accompany the eruption is the third essential feature of the group. These symptoms vary in type and intensity and may consist of pricking, itching, burning, or actual neuralgic pain, and are generally of a markedly paroxysmal character. Sometimes the itching is so intense that the pain and discomfort of digging out the papules with the fingernails is preferable to it.

LESS CONSTANT FEATURES.

General Health.

The state of the general health varies greatly in different cases. At first it is almost invariably well preserved, even when the skin is extensively involved, but in certain instances an attack has been ushered in by general symptoms, such as pains in the joints, malaise, headache, vomiting, &c., suggesting an invasion by some toxin. After the affection has been present for some time general symptoms of a secondary character usually supervene, as the result of the gradual wear and tear from the irritating subjective symptoms, and these, when continued over a long period, are liable to have a depressing influence on the patient, both mental and physical, causing insomnia, establishing a neurotic habit, rendering him emotional and prostrate, and, in extreme cases, leading to insanity. General symptoms may also supervene as the result of septic absorption where the bullæ are extensive and have become purulent.

Mucous Membranes.

As a rule the mucous membranes are not implicated in typical cases of dermatitis herpetiformis. There are exceptions, however, and out of the cases analysed the mucosa was involved in twenty-two cases. In ten of these the mouth was affected, especially the tongue and mucous membrane of the cheeks and lips, and in two the condition began in the mouth; in eleven cases the mucous membrane of the genitals was attacked, and in one case it commenced in the vulva; it has been known also to occur in the conjunctiva and to lead to essential shrinkage and blindness. In the mucous membranes it may take the form of erythematous macules, vesicles leading to superficial ulcerations, or even bullæ.

Condition of the Blood.

Considerable attention has been paid to the state of the blood in this group of eruptions, chiefly owing to an increase in the coarse granular eosinophiles. Indeed, eosinophilia has been observed so frequently in the pemphigoids that its presence has been regarded by some as of diagnostic significance, and suggestive of the action of some toxin on the bone-marrow. This increase of eosinophiles has been noted not only in the blood but also in the contents of the bullæ and vesicles, and occasionally in the cellular infiltration in the corium. The eosinophilia has been found to vary from time to time in individual cases, being greatest when the eruption is at its height, tending to diminish when the nerve irritation decreases, and disappearing between attacks. In certain instances a high percentage of eosinophiles has been recorded; for example, Ravogli recorded 44·3 per cent. in the blood; Bushnell and Williams 69 per cent. in the blood; Jamieson 13 per cent. in the blood and 24 per cent. in the contents of a bulla, and Leredde and Perrin 30 to 95 per cent. in vesicles.

But the eosinophilia is by no means as constant as has been supposed. In a case under my care it was only 4 per cent. in the blood at the height of an attack when the itching was considerable. In a careful examination of the blood by Engman and Davis, out of twenty-seven cases of dermatitis herpetiformis examined, only thirteen showed a definite increase of eosinophiles. These same observers noted that in eighteen out of twenty-six cases of dermatitis herpetiformis there was an increase of the large mononuclear leucocytes which, instead of being about 6 per cent., were increased up to 20 per cent.

In one case a lymphocytosis was described in the cerebrospinal fluid.

It has been asserted that the serum which exudes from the blood-vessels in the pemphigoids has a cytolytic action, which assists in the formation of vesicles and bullæ by causing a disintegration of the inter-epithelial fibrils of the prickle cells, but this, if present, must be comparatively slight, or the average size of the bullæ would be larger.

Condition of the Urine.

The only definite abnormality which has been recorded in the urine in a number of cases is the presence of indican; this was noted by Engman and Davis in fourteen out of twenty-six cases. It has usually been found to be coincident with outbreaks of the eruption, and its presence is suggestive of an auto-intoxication from putrefactive changes in the alimentary tract.

Glycosuria and a diminution of nitrogen in the urine have also been described, but these may be coincidences.

COURSE.

The course of the affection is invariably chronic, and it may last for years or indefinitely. It may be continuous, but is far more usually subject to periods of more or less complete remission lasting for weeks or months, followed by a recurrence, the tendency to recur being one of the most constant characteristics of the group, but one which it has in common with chronic pemphigus.

HISTO-PATHOLOGY.

There has been nothing new or significant added to the descriptions of the histo-pathology given by Elliott, Leredde and Perrin, Gilchrist, and others. The changes in the corium would appear to be primary, those in the epidermis secondary. In the epidermis the vesicles may form, as in eczema, in the epidermis itself, but more often are situated immediately beneath it, the whole of the epidermis forming a roof. The vesicles contain coagulated albumin, fibrin, débris of leucocytes, eosinophiles, and, if suppuration has taken place, polynuclear leucocytes. The prickle cells in the neighbourhood of the vesicles or bullæ are usually œdematous, and may present a central space in which the nucleus lies. The interepithelial lymphatic spaces are dilated, and eosinophiles occasionally occur between the cells.

It is in the papillary and sub-papillary layers of the corium that the initial changes take place. These consist of a marked dilatation of the capillaries, with œdema of the surrounding fibrous tissue, rarefaction of the fibrous bundles of the collagen, a dense infiltration of cells, an exudation of serum, and an extravasation of lymphocytes, eosinophiles, and of polynuclears, if suppuration has taken place. The lymphatic spaces in the papillary and sub-papillary layers are also dilated. The exudation of fluid may be so rapid as to mask the initial period of congestion owing to the formation of vesicles or bullæ. The condition has all the appearances of an acute inflammatory disturbance in the upper part of the corium, the result of some toxic irritant.

ÆTIOLOGY.

Age.—The affection may occur at any age; in the cases here analysed the extreme ages of onset were 11 weeks and 75 years. The most common age of incidence is between 20 and 40. It is a rare disease in children, as was shown by my statistics at the Victoria Hospital for Children, where it occurred in only 0·02 per cent. of the cases. Although typical cases have been recorded in childhood, it is open to discussion whether most of them would not have been better described as pemphigus vulgaris, as in the majority there was a vesicular or bullous eruption, which was recurrent, but showed neither herpetiform grouping, multiformity of the initial lesions, nor intensity of subjective symptoms. It is also probable that one or two of the cases classified as congenital dermatitis herpetiformis were in reality epidermolysis bullosa, while the description in others suggests vesicating urticaria or bullous erythema.

Sex.—It would appear to be equally common in males and females, and in the collected cases there were fifty-seven males and fifty-one females. Meynet, who reported twenty-four cases in children, found that it was more common in males, in the proportion of seventeen to seven.

General Health.—A low state of the general health does not appear to be a definite predisposing cause, though it has been suggested as such. In nearly all the cases the general health appears to have been up to the average, and only in two of them was there any mention of defective nutrition.

Determining Causes.

☐ *Pregnancy.*—Pregnancy is the most definite determining cause, and the cases which have been recorded under the heading of herpes gestationis, herpes gravidarum, and hydroa gestationis, belong to this category. It may occur as early as the third month of pregnancy, or may not appear till after delivery. It may develop with the first pregnancy, and either recur with each subsequent one or miss one or more, or it may first occur with a later pregnancy. As a rule, it does not interfere with the pregnancy or the health of the child, but occasionally it has been known to lead to premature birth and to cause death of the foetus. The severe early pustular type of herpes gestationis probably corresponds to the cases described as impetigo herpetiformis by Kaposi.

Disordered Menstruation.—Several cases are on record in which it has occurred in association with, and appeared to result from, derangements of menstruation, and both exacerbations and recurrences have been known to take place at the menstrual periods.

Nerve Influences.—It has been said that this type of eruption occurs most frequently in neurotic individuals, but this assertion has not been borne out in my cases, where a neurosis, if present, appeared to be the result and not the cause of the disease. There are instances on record, however, in which an attack has been preceded or aggravated by psychical disturbances, such as emotion, anxiety, worry, fear, anger, or severe mental shock, and it has been known to be associated with hystero-epileptic fits.

Chills.—In four of the collected cases the onset of the attack was immediately preceded by a chill, which was blamed for causing the disease, but this may have been a coincidence.

Vaccination.—Several cases have been reported in children as occurring after vaccination, and it has been suggested that the vaccination caused the condition by liberating some toxin. It is possible that certain of those cases were really instances of erythema bullosum.

Drugs.—In one or two instances an eruption of this type has followed the taking of some drug. For example, Mackenzie recorded a case in which an outbreak of dermatitis herpetiformis occurred in a man while taking arsenic for loss of the hair.

PATHOGENESIS.

The exact nature and causation of dermatitis herpetiformis still remains unknown. There is no evidence that it is an acute infective process due to primary microbic infection, and the vesicles and bullæ are at first sterile. It has been suggested that it is a paroxysmal neurosis, but this view has not met with much support.

The most prevalent hypothesis is that it is an intoxication and caused by the circulation in the blood of some endogenous toxin. It has been suggested that this toxæmia is the result of renal inadequacy, and in two cases in which post mortems were obtained a renal sclerosis was described, but this may have been a coincidence. Examinations of the urine, moreover, have not supported this view, as in the cases in which it had been carefully estimated, except in the few instances in which indican was present, it neither contained abnormal constituents nor was deficient in quantity. In favour of the toxic theory is the occasional occurrence of general symptoms with the outbreak of the disease or with a recrudescence, and its ætiological relationship with pregnancy and disordered menstruation, which may be explained on the ground of a toxæmia rather than a reflex neurosis.

The exact manner of action of the hypothetical toxin is uncertain. It may circulate in the cutaneous blood-vessels and so produce the lesions in the skin directly, or it may act primarily on the nervous system and indirectly on the skin.

Various arguments have been advanced in favour of indirect action through the nervous system. For example, it has been pointed out that vesicles and bullæ may occur in connexion with pathological changes in the peripheral and central nervous system, both functional and organic, and that the eruptions might readily be explained as the result of the action of a toxin on the root ganglia. In support of this view also, attention has been drawn to the resemblance between certain cases of dermatitis herpetiformis and herpes zoster, and the similarity in the initial lesions, their grouping, and the character of the subjective symptoms accompanying them which may closely correspond in type. In this connexion a suggestive case recently came under my care in which dermatitis herpetiformis had been present in an adult male for several years, and while the eruption was still out an acute attack of herpes zoster affecting the seventh and eighth dorsal root areas was superimposed, apparently as the result of a chill. Galloway also recorded a case of herpes zoster following dermatitis

herpetiformis. In herpes zoster, however, except in cases where it is symptomatic of some central nervous disease, there is usually a definite inflammatory disturbance with its main seat of origin in the posterior root ganglia, in which changes of an inflammatory type with hæmorrhages can be detected, usually associated with degenerative changes in the posterior columns of the cord and the peripheral afferent nerves. In dermatitis herpetiformis, however, in the cases which have been examined post mortem no definite organic changes have been detected so far, either in the peripheral nerves, root ganglia, or spinal cord. But in answer to this it may be argued that the toxin may be capable of sufficiently irritating the root ganglia as to cause symptoms in the skin without giving rise to definite organic changes.

In short, it seems most probable that the affection is due to some autogenous toxin, not necessarily of a specific nature, which may be called forth by a variety of influences and most probably acts indirectly on the skin through the nervous system.

DIAGNOSIS.

The most important point in the diagnosis of dermatitis herpetiformis is the question of its differentiation from chronic pemphigus and the decision as to whether they are distinct entities and not simply variants of a common morbid process.

Before discussing this there are one or two minor questions bearing on the diagnosis which require consideration. Of these, the first is the relation of the pemphigoids to the impetigo herpetiformis of Hebra and Kaposi. I have never had the opportunity of seeing a case of impetigo herpetiformis, but the descriptions of the majority of the cases seem to suggest a pustular herpes gestationis, and as all stages of transition between typical grouped dermatitis herpetiformis and pustular circinate impetigo herpetiformis have been described, there does not seem to me to be any cogent reason for separating them.

Another point of minor interest is that several writers included under the heading of dermatitis herpetiformis the hydroa æstivale of Crocker, or hydroa vaccini-forme of Bazin. This is difficult to explain, as the differentiation of that affection from dermatitis herpetiformis presents no difficulty, for hydroa æstivale tends to stop at puberty, chiefly affects the exposed parts, is largely due to local irritation from the actinic rays of the sun, occurs most frequently in the male sex, and the lesions are followed by scarring. Mild cases of dermatitis herpetiformis are also occasionally mistaken for eczema, and instances

are sometimes met with in which a firm diagnosis between the two presents considerable difficulty. In dermatitis herpetiformis, however, there is not the same tendency to weeping as in eczema.

With regard to the differentiation of dermatitis herpetiformis from pemphigus chronicus there is much room for argument. It seems to me that in the present state of our knowledge it is advisable to consider them as distinct, though it must be conceded that cases do arise which are exceedingly difficult to place and may almost be regarded as transitional stages between the two. The differences between the two types of cases have been dealt with in detail by Colcott Fox and other writers, and I will refer now only to the most salient of them.

In chronic pemphigus the eruption is uniform and the primary lesion a bleb, usually arising on apparently healthy skin, though occasionally an inflammatory halo may appear so quickly as to be almost synchronous with the exudation of the fluid; in dermatitis herpetiformis the eruption is essentially multiform.

In dermatitis herpetiformis the bullæ are rarely larger than a filbert nut; in chronic pemphigus they may be as large as the palm of the hand.

In dermatitis herpetiformis the lesions tend to be grouped in a herpetiform manner or arranged in rings, or in gyrate patterns; in chronic pemphigus they are distributed irregularly.

In dermatitis herpetiformis the mucous membranes are only involved in about 20 per cent. of the cases; in chronic pemphigus they are more commonly attacked.

In dermatitis herpetiformis intense subjective symptoms usually accompany the eruption; in chronic pemphigus there are, as a rule, no subjective symptoms either preceding or accompanying the skin lesions, unless when the blisters get broken and leave a raw, painful surface.

In dermatitis herpetiformis post-mortem examinations have so far revealed no definite and constant changes either in the internal organs or the nervous system; in chronic pemphigus various pathological changes have been described, such as degeneration of the peripheral nerves and spinal cord, and fatty degeneration of the liver and heart, which may be secondary. Eppinger recorded six cases of chronic pemphigus in which there were degenerative changes in the peripheral nerves and hæmorrhages in the central nervous system; Mott has described degeneration in the peripheral nerves; and Jamieson and Welsh in a case of pemphigus vegetans found degenerative changes in the cells of the spinal cord in which they became vacuolated with a diminution of chromophile substance suggesting a toxic degeneration.

With regard to pemphigus vegetans, it would appear that certain of the mild cases reported under that heading were vegetating types of dermatitis herpetiformis, while the malignant cases belonged to a different category—their cause being still unknown.

TREATMENT.

It cannot be said that any great advance has been made in the treatment of the pemphigoid eruptions since the debate in 1898, nor has experience since then provided us with any specific remedy. At the present time the treatment cannot be claimed to be more than symptomatic, aiming at the relief of the irritation, paroxysmal pain, general depression, and insomnia.

In the past arsenic has been largely employed for this affection and was once credited with having a definitely curative effect upon it, but further experience of its use has proved that, though occasionally it may have a controlling influence, it cannot be said to be curative. In most cases it is necessary that the limit of toleration be reached before any appreciable benefit is derived from the drug, and even then it may be ineffective, as in a case under my care, where symptoms of chronic arsenical poisoning were beginning to show themselves, in the form of pigmentation and diarrhoea, while new lesions kept appearing on the skin. It has been found also that in cases which respond to arsenic pushed to the limit of toleration, any reduction in the dose may cause a return of the eruption. In the cases where it is beneficial the arsenic would seem to act chiefly through its tonic effect on the nervous system, and it would appear to be specially useful in children. It has been employed principally in the form of Fowler's solution, or as the liq. arsenici hydrochloricus. The aryl-arsenates—namely, atoxyl and arsacetin—have also been given a trial, but with doubtful benefit, and the treatment is not to be recommended on account of the pain of the injections.

Salvarsan has been used and improvement, but not cure, recorded (Russell Wilkinson).

Improvement has also been reported from the employment of thyroid, but the results from it have been uncertain.

Other drugs which have been used occasionally with benefit in the relief of the irritation in extreme cases are antipyrin, phenacetin, quinine, salicin, opium, and hypodermic injections of morphia.

Relief has also been claimed from lumbar puncture, but I have no personal experience of it in this connexion.

Where the eruption is profuse and the itching intolerable benefit may sometimes be derived from a vegetarian diet, which at the same time should be low, almost reaching the point of starvation.

Locally the treatment is also purely symptomatic and consists of antipruritic or antiseptic local applications. I have got most benefit from soothing remedies, such as a cream containing small quantities of menthol, glycerine of lead, or from a zinc paste with or without the addition of tar. I have not found the relief from strong sulphur ointment which Duhring and others have claimed.

Benefit has been reported in extensive cases from light baths.

BIBLIOGRAPHY.

- ARNOZAN. "Herpes gestationis," *Arch. Clin. de Bordeaux*, November, 1893.
- BOECK, A. "Herpes gestationis," *Norsk. Mag. for Laegebideskaben*, 1893.
- BOWEN, J. T. "Bullous Dermatitis following Vaccination," *Journ. Cutan. and Gen.-urin. Dis.*, 1901, xix, p. 401.
- Idem.* "Five Cases of Bullous Dermatitis in Children following Vaccination," *Trans. Amer. Derm. Assoc.*, 1900.
- BROCQ, L. "Dermatite herpétiforme de Duhring," *Ann. de Derm. et Syph.*, 1881, ix, p. 1.
- Idem.* "Des Dermatites polymorphes douloureuses," *Presse méd.*, 1900.
- BUSHNELL and WILLIAMS. "Eosinophilia in Dermatitis herpetiformis," *Brit. Journ. Derm.*, 1906, xviii, p. 177.
- DUHRING, L. Papers on Dermatitis herpetiformis, *New Syd. Soc.*, 1893, cxlvii.
- Idem.* "Cutaneous Medicine," pt. 2.
- ELLIOTT, G. T. "Dermatitis herpetiformis developing after Severe Shock," *Journ. Cutan. and Gen.-urin. Dis.*, 1891, ix, p. 421.
- ENGMAN, M. F. "Indican in the Urine of those affected with Dermatitis herpetiformis," *Journ. Cutan. Dis.*, 1906, xxiv, p. 216.
- ENGMAN and DAVIS. "Some Observations upon Cellular Elements of the Blood in 300 Cases of various Skin Diseases," *Journ. Cutan. Dis.*, 1915, xxxiii, p. 73.
- FORDYCE, J. A. "Dermatitis herpetiformis and Impetigo herpetiformis," *Journ. Cutan. and Gen.-urin. Dis.*, 1897, xv, p. 495.
- FORDYCE and GOTTHEIL. "Dermatitis vegetans in its relation to Dermatitis herpetiformis," *Trans. Amer. Derm. Assoc.*, May and June, 1906, p. 170.
- FOX, T. COLCOTT. "Pemphigoids," Allbutt and Rolleston's "System of Medicine," 1911, ix, p. 445.
- FOX, TILBURY. "Hydroa," *Arch. Derm.*, Philad., 1880, vi, p. 16.
- GARDINER, F. "Dermatitis herpetiformis in Children," *Brit. Journ. Derm.*, 1909, xxi, p. 237.
- GILCHRIST, T. C. "Pathology of Dermatitis herpetiformis," *Johns Hopkins Hosp. Rep.*, 1896, i, p. 365.
- HALL, A. J. "Hydroa gestationis," *Quart. Med. Journ.*, November, 1899, p. 29.
- HALLOPEAU, H. "Dermatite pustuleuse chronique et végétante en foyers à progression excentrique," *Intern. Atlas of Rare Skin Dis.*, 1890.
- JAMIESON, W. ALLAN. "Dermatitis herpetiformis." (Debate on Dermatitis herpetiformis at the Dermatological Society of London), *Brit. Journ. Derm.*, 1898, x, p. 73.
- LEREDDE and PERRIN. "Anatomie pathologique de la dermatose de Duhring," *Ann. de Derm. et de Syph.*, 1895, 3me sér, v, p. 281.
- Idem.* [Eosinophiles in the Vesicles of Dermatitis herpetiformis], *Ann. de Derm. et Syph.*, 1895, 3me sér., vi, p. 452.

- LIDDELL, J. "Case of Dermatitis herpetiformis," *Brit. Journ. Derm.*, 1896, vii, p. 385.
 MACKENZIE, S. "Dermatitis herpetiformis," *Brit. Journ. Derm.*, 1893, v, p. 1.
 MEYNET and PEHA. "De la dermatite polymorphe douloureuse (dermatite herpétiforme de Duhring-Brocq) chez l'enfant," *Ann. de Derm. et Syph.*, 1903, p. 893.
 RAVOGLI. "Eosinophilia in Dermatitis herpetiformis," *Brit. Journ. Derm.*, 1901, xiii, p. 34.
 SUTTON, R. L. "Dermatitis herpetiformis in Early Childhood," *Amer. Journ. Med. Sci.*, 1910, cxi, p. 727.
 WICKHAM, L. "Dermatitis herpetiformis and Renal Inadequacy," *Brit. Journ. Derm.*, 1895, vii, p. 386.
 WILKINSON, RUSSELL. "Dermatitis herpetiformis treated with Salvarsan," *Brit. Journ. Derm.*, 1914, xxvi, p. 96.

The PRESIDENT said members would agree with him in thanking Dr. MacLeod for a most admirable paper, which was thoughtful, exhaustive, and very suggestive. He had arranged that the Section should have an adjourned meeting for its debate.

Sir MALCOLM MORRIS, K.C.V.O., said that the first point which struck him was that so little advance had been made in this subject since the debate of 1898.¹ Dr. MacLeod had therefore undertaken a very difficult task, which entitled him to the thanks of the Section.

His first experience of diseases of the skin was gained in the year 1871, when he took Hebra's course in Vienna, remaining in that city several months, and there acquiring his interest in dermatology. Hebra was a remarkable personality, who had an enormous power of communicating to others his own enthusiasm for dermatology. Crowds of men came from all parts of the world to sit at the feet of that great teacher. Many quite different cutaneous affections, which apparently had little or nothing in common, were all relegated by Hebra to the great pemphigus group, and he (the speaker) left Vienna with the idea that any disease which presented bullæ of moderate persistence was a pemphigus, although Hebra, of course, excluded accidental bullæ, which were obviously due to external causes. Tilbury Fox's famous paper, written in 1879, or just before that date, was only published in an American paper, in 1880, and was lost sight of; and the subject was not revived in the minds of dermatologists until Duhring, by what he ventured to call an act of genius, picked out certain cases which, he held, differed clinically from pemphigus and erected them into a new group under the designation of dermatitis herpetiformis. The departure met with strong opposition from the Vienna School, then represented

¹ Vide *Brit. Journ. of Derm.*, 1898, x, p. 73 et seq.

by Hebra's son and Kaposi, and it was contended that the cases properly belonged to the group to which the elder Hebra had assigned them. He, however, was strongly of the belief that Tilbury Fox and Duhring were right; that the cases which they named dermatitis herpetiformis differed essentially in their characters from those of the pemphigus group—i.e., from chronic pemphigus. He held, therefore, that the disease called dermatitis herpetiformis was a distinct entity, which it was only confusing to class with pemphigus vulgaris. The clinician must recognise that there were many cases of which it was difficult to determine to what group they belonged; they were intermediate cases, which overlapped each other. But the condition so clearly described by Tilbury Fox and Duhring, and later emphasised by Brocq and the French School, as Dr. MacLeod had reminded them, was a quite definite disease. The cases which conformed to this type were at one end of the group; pemphigus vulgaris was at the other end.

In connexion with the cases exhibited that afternoon, it would have been of extreme interest to discuss to what groups they belonged; some tended to the true pemphigus type, which, he considered, always bred true, while others tended towards dermatitis herpetiformis, which also, when typical, bred true. He had watched some cases of the latter type for years, and had had opportunities for a careful study of them. They all seemed quite definite and characteristic, and it would be to him a great disappointment if, after all these years, those cases, so well defined, were put back into the group from which they had been differentiated by a triumphant piece of analysis; this would be, in his opinion, a distinctly retrograde step.

Dr. MacLeod's first question was whether the eruptions classified under the head of dermatitis herpetiformis were all due to one cause. But as to the cause they were entirely in the dark. Dermatologists had tried to catch at straws in individual cases; they vaguely hoped they were somewhere near the mark when they said that one case was due worry, another to shock, and so forth. But such ætiological surmises led to nothing in the nature of a generalisation, and it had to be confessed that they knew virtually nothing about the causation of the disease. The proper answer to the first question, therefore, was: cause unknown, clinical type distinct.

As to the difference between dermatitis herpetiformis and chronic pemphigus, or pemphigus vegetans, there was one point which, he thought, had not been touched upon in the study of this subject, but

which seemed important—namely, the extraordinary depth of the vesicles in true dermatitis herpetiformis. Three years ago he showed a patient before the Section whom he had watched for seven years, so that he had now had her under observation for ten years. That patient had repeatedly come to him and said of the vesicles, “There are some here, and others are coming.” He would tell her that there was nothing to be seen at the points where she believed vesicles were coming, but she remained positive that they were on the way, and so, time after time, it proved to be so. As the deep vesicles began to form the itching was intense, and, with the savagery towards themselves which was characteristic of this disease, patients would dig their nails deep into the skin to root out the lesion, their experience being that as soon as the vesicle was ruptured the irritation found a relief which no application seemed to afford. Dr. Galloway, and others too, perhaps, knew of the case of an unfortunate man who had suffered from the disease for many years, and had acted in the manner described in his (the speaker’s) consulting room. He had had this patient under observation for three-quarters of an hour at a time; he would sit on the sofa, refusing to dress, and busying himself in hunting for the deep vesicles and tearing them out, and it was curious, after he had done so, to observe his expression of blissful relief. In the character to which he was drawing attention dermatitis herpetiformis differed strikingly from pemphigus, in which not only were there no such extreme attacks of itching, but the lesions were too tender and painful to allow of the self-inflicted violence he had described.

In the debate of 1898 he stated that he had known four cases in which death appeared to be directly due to dermatitis herpetiformis; in two of them death occurred suddenly as the eruption disappeared, and he believed the President had seen similar cases. Such cases were not described in books on dermatology, and the connexion between death and the disappearance of the eruption might be a mere coincidence; nothing being known of the cause of the disease, he limited himself to a mere statement of the clinical fact. He had not met with such a case since 1898.

It was rather remarkable that in his private practice he had had fewer instances of dermatitis herpetiformis since 1898 than before that year. Whether the explanation was that the incidence of nervous instability was somewhat less than it used to be he did not know. But he thought it not improbable that after the time of stress through which the nation was now passing, cases of this disease would be less

rare. He was already beginning to observe an increase in the number of cases of lichen planus, due, he was inclined to think, to the worry which the war was bringing in its train.

Since the debate of 1898 he had taken special note of the children brought to him suffering from cutaneous diseases, and during the whole of this period he had not had a case in a child which conformed to the dermatitis herpetiformis type. He had seen in children many cases which persisted for many months, or for years; but they had all been cases of vesicating lichen urticatus, and he agreed with Dr. MacLeod that in typical dermatitis herpetiformis urticaria was a rare concomitant.

In typical dermatitis herpetiformis the mucous membranes of the mouth were much less affected than in pemphigus. This he regarded as another great difference between the two conditions. In one or two instances of the former disease the pathological process had begun in the mucous membrane of the vagina and had then appeared on the skin elsewhere, but not in the mouth.

"Essential shrinking" was, in his opinion, associated with pemphigus, not with dermatitis herpetiformis. In the latter condition he had never known the eye to be affected with von Graefe's disease; but he had seen and published cases showing that association in pemphigus.

There was much that he would have liked to say about treatment had there been time; but he must briefly refer to arsenic. He believed, with the late Sir Jonathan Hutchinson, that arsenic was of the greatest possible service in pemphigus. It was much less serviceable in dermatitis herpetiformis; but he was inclined to think that it had been more beneficial in his recent experience than he formerly found it to be. In the case of the patient whom he had had under observation for ten years, he was certain that her sufferings were greatly mitigated by this drug, for its vigorous employment repeatedly led to a temporary cessation of the attacks. She came to feel that she would rather endure chronic arsenical poisoning than suffer from her disease, and he confessed that he sympathised with her in her choice between the two evils. This, indeed, was one of the few diseases in which it was justifiable to push arsenic almost to poisonous doses.

External treatment he regarded as the most difficult aspect of the therapeutics of dermatitis herpetiformis. He had known some cases to be benefited by warm alkaline baths, others were not. Sulphur ointment was said in certain books to be useful; in his experience it

seldom was so, though some slight benefit might occasionally be traceable to its employment. The patient to whom he had referred more than once was a woman of intelligence and observation, who had very carefully studied the course of her disease, and her experience was that when the lesions had burst she found relief by rubbing in an alkaline application, such as carron oil or zinc cream.

The cordial thanks of the Section were due to Dr. MacLeod for the able paper in which he had introduced the subject of the debate.

Dermatological Section.

June 3, 1915.

Dr. J. J. PRINGLE, President of the Section, in the Chair.

DISCUSSION ON PEMPHIGOID ERUPTIONS.¹

DR. GEORGE PERNET said that in the first place he thought the term "pemphigoid" was not a desirable one, a point upon which he was in agreement with Dr. MacLeod. He would reply to the questions put by the opener of the debate in the following order:—

(1) He did not regard the eruptions classified under the heading of "dermatitis herpetiformis" as due to one cause, nor did he regard them as variants of one morbid entity. They might arise from a variety of causes, usually toxic, either through the blood-stream or by way of a neuro-reflex arc. In 1910, he published a note on "Pemphigus and Dermatitis Herpetiformis"² relative to the case of a woman who had had a pemphigus (bullous) eruption starting from a septic vaginal focus and who had subsequently presented, when this had cleared up, an eruption of the dermatitis herpetiformis type. The subject was a very complex one and the opener had well brought out the various points. Speaking from his own experience, he was of opinion that a variety of eruptions of the erythematous and urticarial kinds, including vesicular and bullous conditions, might arise clinically from one and the same toxic cause. On the other hand, one type of eruption might result from a variety of causes.

(2) Though dermatitis herpetiformis was in its classic form clinically distinct, it was, in his opinion, probably related to chronic pemphigus and pemphigus vegetans. The soil on which the pathogenic forces acted had to be taken into account. He had seen cases

¹ Adjourned from May 20.

² *Brit. Journ. Derm.*, 1910, xxii, p. 1.

of alleged dermatitis herpetiformis in children, but he had doubts about the correctness of the diagnosis.

(3) As to impetigo herpetiformis, he had never seen an actual case which entirely fitted the description given. But he had described what he had named a "dermatitis pustulosa vegetans recurrens" in some ways like the case shown by Dr. Douglas Heath at the last meeting, and which probably came into the same category as impetigo herpetiformis and Hallopeau's "Dermatite pustuleuse chronique en foyers à progression excentrique." This had been discussed in the speaker's paper on "Dermatitis pustulosa, &c.," in the *New York Journal of Cutaneous Diseases* for September, 1912.

(4) With regard to eosinophilia, he considered this was a toxic phenomenon. Eosinophilia was present in the blood of those acting as hosts to parasitic worms.

(5) The speaker had not of late years seen instances of typical dermatitis herpetiformis. The condition seemed rarer than formerly. He had had experience of classical dermatitis herpetiformis, and, like everyone else, had found it most refractory to treatment, the painful itching being the symptom that gave most trouble. But he had observed cases which came into the category of dermatitis herpetiformis, which were of a mild type. These yielded to salicin in the few instances he had seen. As to the painful itching, he had seen an otherwise typical dermatitis herpetiformis in a boy, following varicella, in whom the pruritus was entirely absent. He had not had an opportunity of trying lumbar puncture, but from what he had read that procedure did not appear to give the startlingly good results which were obtained from it in early acute generalised lichen planus.

In conclusion, he would recommend a perusal of Brocq's papers on the "Dermatites polymorphes douloureuses."

Dr. KNOWSLEY SIBLEY said that the difficulty which apparently arose in the discussion was as to what to include and what not to include under the heading "dermatitis herpetiformis." Dr. MacLeod gave three cardinal features of the disease: (1) The multiformity of type of the lesions; (2) the herpetiform grouping; and (3) the intensity of the subjective symptoms. His own opinion was that the third of these—namely, the intensity of the subjective symptoms—was the most important, and that no case which, though having a bullous eruption, had not cutaneous symptoms out of all proportion to the physical appearance, should be included under the heading "dermatitis herpetiformis."

He believed this complaint to be a distinctly tropho-neurotic condition, as illustrated in the cases of it which were seen in pregnant women, cases which he considered to be fairly numerous. Some of them might remember the case of the woman he showed at the previous meeting; she had a severe attack of dermatitis herpetiformis, which came on after a shock at the loss of her husband from an accident. About a fortnight after she complained of great irritation, with itching and burning of her skin. After that had persisted for some weeks she had a vesicular, and later a bullous eruption, more or less over the whole body; and there were associated lesions inside her mouth.

That brought him to the discussion of the question of lesions of mucous membranes in this disease. His opinion was that one might see cases of dermatitis herpetiformis affecting only the mucous membranes. Some years ago, Jacobi, of New York, had reported some cases under the heading "*stomatitis neurotica chronica*"; and independently about the same time the speaker had recorded three or four cases.¹ He believed them to be cases of dermatitis herpetiformis; there was a vesicular eruption inside the mouth, the lesions tended to come out in crops, they were very painful, and there was indefinite persistence; some went on for years. One case was reported with a duration of thirty years, accompanied by an astounding amount of physical suffering. There were no lesions on the body in those cases, and the subjects were all neurotic women, the onset having been determined by shock, worry, or other mental disturbances. So much was this the case in typical examples of dermatitis herpetiformis that one wondered whether it would not be wise to substitute the term "*dermatitis neurotica chronica*" for "*dermatitis herpetiformis*."

Dr. MacLeod asked, in his opening paper, whether there might be mild cases of the disease. The speaker presumed he meant by that, localised as opposed to extensive cases. He thought they might meet with such. He had in his memory the case of a professional lady who, whenever she had an exceptional amount of worry or trouble, had a vesicular eruption on the lower part of the abdomen, between the umbilicus and the symphysis pubis. This was accompanied by great pain, burning, and distress of the skin. The eruption was not unilateral, but occurred on both sides of the abdomen. He had seen her in a number of these attacks, which lasted from several weeks to months without, apparently, any lesions elsewhere. That he regarded as a case of mild

¹ *Brit. Med. Journ.*, 1899, i, p. 900.

dermatitis herpetiformis. Therefore, if the intensity of the skin sensations were essential, one would exclude from the group cases which were met with in infants and young children, as it was recognised that practically all the cases they saw in infants and young children were associated with very slight or no cutaneous symptoms. He believed that some of the cases which had been recorded as occurring in young children, following vaccination, were examples of generalised vaccinia. They were, perhaps, rarely recognised as such, and the condition might persist for months. The other cases which are seen in children generally seemed to be of the impetiginous variety, rather than dermatitis herpetiformis.

He also thought that sufficient stress was not usually laid on the secondary organism—he supposed it was secondary—though he had not quite convinced himself that the vesicles were always sterile at the beginning. Certainly early in the eruption an organism generally appeared in the vesicles, and his impression was that that organism played an important part in the disease; at any rate, he was certain, from an experience of many cases, that a vaccine prepared from the organism and given to the patient seemed greatly to benefit the progress of the complaint. Possibly they would note later that cases having some organisms progressed more favourably than did those with other organisms. He was trying to collect cases to determine that point, but his material was not yet sufficient to enable him to be sure about it.

With regard to treatment, he treated his cases locally with radiant light and heat baths, as those relieved the cutaneous symptoms. If they failed he gave alkaline or bran baths; and he also gave a vaccine prepared from the organism found in the early lesions. In cases in which anæmia was associated he administered arsenic; but he very rarely gave arsenic for any cutaneous conditions, except where anæmia was present, and then principally when the patient was a young girl. With regard to the relief of the distressing skin symptoms, he was sorry to hear Dr. MacLeod recommend morphia; it seemed to him that in dermatological practice morphia was a drug which should hardly ever be given. He thought all these cases of intolerable itching yielded to one or other of the coal-tar preparations—antipyrin, phenacetin, aspirin, and so on—and it was undesirable to give morphia, especially in young people. The only kind of skin case in which he thought it might be given justifiably was the chronic painful ulcer of the leg in old people, where opium not only acted as a sedative, but also as a tonic to the general nervous system; but he never considered it wise to prescribe morphia to young or middle-aged patients.

Dr. GRAHAM LITTLE said that in his view, while every credit was due to Tilbury Fox and Duhring for their work, which had resulted in the separation of the group of dermatitis herpetiformis from pemphigus, the separation was nevertheless premature. The differentiations which had been suggested were entirely clinical, and yet did not correspond with the clinical facts. Even if one added to the three cardinal symptoms of dermatitis herpetiformis propounded by Dr. MacLeod further differentiations—and he was somewhat surprised at the omission from Dr. MacLeod's list of what he regarded as one of the most characteristic features of the disease, namely, the repeated recurrences—one found that each one of these broke down when confronted with a series of cases. It had been a matter of common experience both in this Section and in the earlier societies from which it was derived, that whenever a case was brought forward with the diagnosis of either pemphigus or dermatitis herpetiformis, there was practically never any general agreement as to which label should be attached to it, and often the numerical division was equal in favour of one or other of these two labels. It had to be conceded, in fact, that there was no unassailable criterion of differentiation; and this being so, there was no clinical convenience, but rather a source of confusion in attempting to maintain a difference. The best course would probably be to drop both the terms in dispute, and to substitute a fresh name which would include all the cases which in any assemblage of experts would certainly be classed either as dermatitis herpetiformis or as pemphigus. A suitable choice for a new name might be Tilbury Fox's title of "hydroa pruriginosa," which the speaker agreed, with Köbner, in thinking at least a preferable term to dermatitis herpetiformis for this particular group of cases. On the other hand, a number of cases had been included under the name of "acute pemphigus" with the group of pemphigus which the speaker did not think should be so included. These were cases of acute infective bullous eruptions, lacking the fundamental characteristic of recurrence, and differing both from dermatitis herpetiformis and pemphigus in which diseases the vesicle was normally sterile. There was no more reason for classing these bacterial cases with pemphigus than with dermatitis herpetiformis. The speaker had seen cases which, clinically, had commanded at exhibition at the older societies as general an assent for the diagnosis of dermatitis herpetiformis as was ever obtainable, and had yet shown bacterial contents of variable nature, and he could recall instances in which streptococcus, pneumococcus, and even the diphtheria bacillus had been demonstrated in the unbroken vesicles of such an eruption.

A classification which would probably include most of the clinical facts would thus be: (1) Erythema multiforme, (2) hydroa pruriginosa, (3) acute bacterial bullous eruptions. The latter group would conveniently take in impetigo herpetiformis, and the vaccinides. The first group might embrace those difficult cases of presumed dermatitis herpetiformis in which vesication was minimal in degree or absent. The size of individual bullæ was often made a point of difference, and it was assumed that smallness of these favoured a diagnosis of dermatitis herpetiformis. He could not agree with this view and had in fact demonstrated its falsity by an experiment. In a case of this disease a single bulla had, with the co-operation of an intelligent nurse and a sporting patient, been so protected from injury by means of cradles that it had been cultivated into a prodigy of a bulla, and had attained the size of an orange before it finally burst. Size was very much a matter of accident and depended on the thickness of the walls and the vulnerability of the site.

Sir Malcolm Morris had suggested that dermatitis herpetiformis had become less frequent as compared with his earlier experience. It was difficult to comment on this because it was almost impossible to ascertain the individual predilections of reporters for one or other of the two labels. The present speaker had analysed his own records of the past twelve years, and had found notes of thirty-two cases which he had regarded as dermatitis herpetiformis. Twenty-five of these had occurred at St. Mary's Hospital, in a series of 21,000 cases of general skin disease between 1902 and 1915. If one compared with these Crocker's statistics, which formed the most useful standard of comparison for the period up to the date of their compilation—i.e., before 1893—one found that Crocker had ten cases in 10,000 hospital cases of general skin disease. From such a comparison it would almost appear that the disease had become more rather than less frequent, but probably to compensate for individual predilections a more effective method of comparison would be to pool all the cases of dermatitis herpetiformis with those of pemphigus for any given period and to note if the diminution was noticeable in the sum of the two diseases. Crocker certainly would seem to have preferred the pemphigus label, for in the same 10,000 cases he reported thirty-three cases of pemphigus. The speaker, on the other hand, regarded pemphigus as one of the rarest of skin diseases, when subtraction had been made of the cases which answered the requirements for dermatitis herpetiformis, and the cases of so-called acute pemphigus—i.e., bacterides of variable type.

In the speaker's small personal experience, eosinophilia had been most erratic and uncertain, and he attached no importance to this feature as a means of differentiation; nor could its presence be accepted as any index to the severity of eruption or other symptoms.

The pathogenesis in the large majority of instances seemed to be ascribable to neurotic influences, either to direct nerve poisons, such as might be assumed to be effective in the case of herpes zoster, or indirectly through neurotic disorder of intestinal function. The very worst eruption he had ever seen occurred in an Army officer whom he had visited at Colchester in consultation with Dr. Day, which had come out, acutely, four days after the terrible shock which the patient had experienced in the sudden death, while riding, of his only child, a girl aged 12.

With regard to treatment, one of the most effective means to control itching was to limit for a term the intake of proteid, and Bulkeley's rice diet was very useful in acute stages of the disease.

Dr. WHITFIELD said that in the present state of knowledge there were lamentably few facts from which to argue, but there were one or two points to which he would like to refer.

The first was the opinion expressed by one or two of the previous speakers as to the greater rarity of dermatitis herpetiformis now than formerly. He thought this was due to a different attitude as to the diagnosis. He would put it as a historical phase of thought. A disease was first described, then it became more or less well known, then it "became the fashion," and was diagnosed frequently, and then a reform took place, and the diagnosis was made less often. He thought that they were now in the stage of reform, and that many cases were now called (and rightly so) pemphigus which fifteen years ago would have been called dermatitis herpetiformis.

Secondly, he would give his opinion as to whether there was a disease or set of symptoms which deserved the name of dermatitis herpetiformis. Most of the points of differential diagnosis were so elusive that he was almost inclined to agree with Dr. Graham Little that the separation of dermatitis herpetiformis was in the present state of knowledge premature. He could not, however, quite subscribe to that view. He thought there was a disease which deserved separation from pemphigus, but when there was, as often happened, a difficulty in diagnosing this disease, the difficulty lay not in distinguishing it from pemphigus but in separating it from some entirely different disease, such

as prurigo, urticate erythema, or even vesicular and papular eczema. The itching was, of course, very intense, but so it was in these other diseases just mentioned.

The eruption was often very ill-defined, and the patient at times showed nothing more than the results of scratching, but if the case were studied for a certain period, and its phases watched, there would come a time when one would find the ill-developed erythematous patch with small herpetiform vesicles set usually in a ring round its margin. Dr. Whitfield said that he was pretty confident that that was the view taken by Dr. Colcott Fox, who had been in close collaboration with the late Tilbury Fox when he gave such an accurate description of his group of cases. Duhring, in his later monograph, seemed to the speaker to have claimed too much for the disease. While on this subject he would like to raise a strong protest against the idea that all cases of pemphigus which were pruritic were in reality dermatitis herpetiformis, and also that those with circinate grouping—"pemphigus confertus" of the older authors—were also dermatitis herpetiformis. He might, perhaps, point out that the photograph of pemphigus published in his book was one of a case under the care of Dr. Colcott Fox, who regarded it as classical pemphigus, yet the lesions were grouped in rings. He apologised for dwelling at such length on this point, but he thought there was undoubtedly a disease characterised by the outbreak of prurigo-like papules, erythematous patches, and *at times* herpetiform vesicles, which was not likely to be mistaken for true pemphigus, and for which, if they did not use the term "dermatitis herpetiformis," they must create a new name.

That led him on to two other points—namely, the presence of eosinophilia and the therapeutic reaction with arsenic. Neither of these was, in his experience, of the slightest value in making the diagnosis from pemphigus. It was formerly said that dermatitis herpetiformis did not yield to arsenic so often as did pemphigus. He could not say whether there was *any* difference, but he was convinced that the difference was not marked. He had seen many cases of pemphigus which did not yield to arsenic, and several of dermatitis herpetiformis that did. He had a case under his care in a middle-aged woman—a case of the most exquisite Tilbury Fox type—which had never shown a bulla the size of a green pea, but was constantly covered with itching papules and small rings of erythema with hempseed-sized vesicles, which could be kept under complete control by high doses of arsenic, and under partial control by moderate doses. She had arsenical palms in a

mild degree and fairly marked arsenical pigmentation, and the plan now followed was to give her occasional rest from the arsenic, during which she had to bear the eruption, and then when the arsenical symptoms had partially subsided to return to the least dose which made life bearable.

In conclusion, he would say that he had never made the diagnosis of dermatitis herpetiformis in a child, and he had formed no opinion as to the relationship of dermatitis herpetiformis to simple chronic pemphigus, pemphigus foliaceus, or pemphigus vegetans.

Dr. ADAMSON believed that dermatitis herpetiformis was a distinct disease, different in many respects from pemphigus vulgaris, though possibly nearly related. He regarded it as a very rare disease, and thought it was often diagnosed on insufficient grounds. Many cases which had been recorded under this name seemed to him to be typical examples of pemphigus vulgaris—those cases, for example, which Bowen and Gardiner had described as dermatitis herpetiformis in children. Many modern observers seemed to lose sight of the fact that according to the earlier writers—Bazin, Liveing, Tilbury Fox, and Duhring himself—dermatitis herpetiformis was essentially a neurosis, and the presence of subjective sensations of burning and intense itching a very important feature of the disease. The fact that an eruption was bullous, and showed a tendency to grouping, did not alone justify the diagnosis of dermatitis herpetiformis. In dermatitis herpetiformis the lesions were often not bullous, but erythematous, papular, or vesicular, and the intense itching was a more striking character than the bullous eruption. One could only make a certain diagnosis in a case in which these symptoms of grouped erythematous, vesicular, papular, or bullous eruption, with intense itching, were repeated again and again after clear or comparatively clear intervals. In pemphigus vulgaris, on the other hand, the most striking feature was the bullous eruption, subjective symptoms were absent or slight, and a diagnosis could generally be made at first sight. In his experience, pemphigus vulgaris was comparatively more common than dermatitis herpetiformis, for he had observed twenty cases of pemphigus and three only of dermatitis herpetiformis during the same period. He did not think the statement of some French writers that pemphigus vulgaris was almost invariably fatal, and dermatitis herpetiformis seldom so, was a correct distinction, for in two-thirds of these cases of pemphigus vulgaris recovery had taken place.

They knew little, if anything, as to the cause of this disease, but the

occurrence of a similar, if not identical, affection in pregnant women suggested a toxic origin—an absorption of placental toxins or of toxins due to metabolic disturbance. And in this connexion the successful treatment of cases of herpes gestationis, of dermatitis herpetiformis, and of pemphigus by injections of human blood or human serum might help to throw light on their ætiology. Most of this treatment had been carried out in Germany and in America during the past five years, but he had recently, in association with his colleague, Dr. Stansfeld, treated several cases of pemphigus by injections of human blood with some strikingly good results; though he would not say more about this treatment until he had had further experience.

Dr. STOWERS said that despite the fact that their knowledge of this class of disease had not materially advanced since the discussion which took place in 1898 to which allusion had been made, it was desirable that a periodical revision should be allowed in order to reconsider their position in regard to it. By this means the older views might be tested and new facts elicited. Such a discussion acted as an incentive to further observation on the part of those members of their Section and others who had clinical material at their disposal and controlled modern methods of investigation and research. For these reasons, apart from others more personal to himself, they were much indebted to Dr. MacLeod for the valuable résumé he had given them in his paper.

The author commenced by defining the sense in which the term “pemphigoids” should be employed—viz., to include dermatitis herpetiformis and hydroa, but to exclude acute pemphigus and pemphigus neonatorum, which were attributable to specific causes. His figures as to incidence were interesting as showing the comparative rarity of these affections; and the three cardinal features enumerated—viz., multiformity, grouping of lesions, and intensity of subjective symptoms, often of the severest nature—were the characteristics which could be relied upon for diagnostic purposes. It was understood that the partial, or even complete, absence of one of them did not necessarily exclude the diagnosis. The variation in size and shape of the vesicles was well known and Dr. Stowers agreed that the blebs of dermatitis herpetiformis did not approach in magnitude those frequently seen in chronic pemphigus. It was true also that cases of congenital epidermolysis bullosa (of which he had recently seen a marked example sent to him as chronic pemphigus) had been confused

with this group, but the history, together with the mode of onset, and the sites of body affected, apart from the character of the lesions, would suffice to eliminate them.

Two statements of Dr. MacLeod could be confirmed by general experience—viz., that herpetiform grouping was occasionally absent in children but invariably present in adults; and that the itching was often of a mild degree in children as compared with adults. Without doubt many of these, as he had indicated, were instances of vesicating lichen urticatus, a variety or stage of that common disorder which was familiar to them all, the ætiology of which had been so fully described by one whose absence they had greatly deplored—he referred to Dr. Colcott Fox, a former President of this Section.

Dr. MacLeod had told them that the mucous membranes were involved in 22 out of 100 cases of dermatitis herpetiformis examined and reported. This was a smaller proportion, the speaker thought, than in pemphigus and pemphigus vegetans.

The most striking instance that he had met with was that of a male patient, aged 46, photographs of whom he handed round for their inspection. He was employed at Maidstone as a railway goods porter and was frequently engaged in night service. The original lesions, limited in severity, occurred on the abdomen, thighs, and forearms, the subjective symptoms being of moderate degree only. He attended as an out-patient at hospital on several occasions for a couple of months and sufficiently recovered for treatment to be discontinued. About eighteen months later he was brought up again in a deplorable condition, with an acute general outbreak, the eruption being chiefly vesico-bullous and bullous, with offensive discharge and much crusting. The subjective symptoms were terribly severe. It was stated that for many weeks before admission the constitutional disturbance had been very marked, with elevation of temperature, &c., of the septic type. Careful nursing and treatment relieved him for a time, but, in spite of all, his condition became aggravated, the bullæ increasing in number and involving new areas, the constitutional disturbance becoming more marked and asthenic in type. He eventually died from exhaustion, in a typhoid state, occasional severe diarrhœa having supervened. The mucous membrane of the mouth and fauces was visibly affected and the septic discharge from the nose indicated that the whole mucous tract was involved. Unfortunately, no post-mortem examination was allowed, so it was impossible to investigate the condition of the stomach and intestines, which undoubtedly were similarly affected. It was possible that this

patient was the subject of some septic infection in addition to the autogenous toxin which primarily affected him, but no local evidence could be traced. Dr. Stowers learnt later that he had been engaged in unloading a railway truck containing bullocks' hides which were in a very malodorous condition.

Dr. MacLeod had raised the question as to whether an increase of coarse granular eosinophiles in the blood could be accepted as characteristic of dermatitis herpetiformis. He had admitted that they varied according to the phase of the disease, and further that they were by no means constant in the course of a case and at certain periods might even disappear. The late Radcliffe Crocker, Leredde, and others laid much stress upon their presence. Johnston, of New York, had stated that in practically all bullous disease except epidermolysis (and he included severe cases of pompholyx in the group) in which a symptom-complex occurred which all observers associated with intoxication, as evidenced by high temperature and its concomitants, including scanty and high-coloured urine—the blebs as well as the blood showed eosinophilia. It was noteworthy, however, that in the bullous dermatoses, while the eosinophile cells abounded in the blood corpuscles, and also in the fluid of the natural bullæ themselves, an artificial blister produced on the skin of a patient so suffering most probably would not present eosinophilia. These investigations led him (Johnston) to the conclusion that the eosinophilia was due to the direct action of the poison on the eosinophile myelocytes of the marrow. The presence of eosinophile cells in the blood had also been found in pemphigus vegetans and pemphigus foliaceus, and moreover they had been reported as abnormally abundant in some cases of leprosy. In spite, however, of the opinion of skilled observers that the excretion of eosinophile cells by the skin was “an essential part of the cutaneous phenomena and, together with the eosinophile cells in the blood, are characteristic of dermatitis herpetiformis,” it was, the speaker feared, impossible at present to give a satisfactory answer to the specific question before them.

The differential diagnosis between dermatitis herpetiformis and chronic pemphigus, so far as the skin lesions were concerned, had been clearly put by Dr. MacLeod. In the former, as he said, the eruption was multiform, in the latter uniform. The bullæ in dermatitis herpetiformis were seldom larger than a filbert, in chronic pemphigus they might attain any size, and in this latter disease there was an absence of the premonitory and other subjective symptoms which in dermatitis herpetiformis

were often of such severe character. Dermatitis herpetiformis was common to both sexes. If he understood Dr. MacLeod correctly he said that according to one author the proportion was about seventeen females to seven males. This, he thought, did not correspond with general experience, his own impression being that in spite of gestation cases in women it was more frequent in men. The most severe and the fatal cases which he had seen occurred in male subjects.

With reference to Dr. MacLeod's question, Were the eruptions classified under the heading of dermatitis herpetiformis due to one cause and could they be regarded as variants of one morbid entity? he would say that, if this disease was of toxic origin—and the lesions of the body certainly pointed in that direction—the evidence that it was primarily a general systemic disorder, and that the cutaneous developments were secondary manifestations through nerve influence, was fairly conclusive. If a neurotic basis was claimed as a primary factor this did not exclude the theory of auto-intoxication, but in some measure supported it. As to the nature of the poison, or poisons, in any such intoxication, it could hardly be expected that they would be proved and separated, especially if they were gastro-intestinal in origin, as was usually the case. It would be remembered that in the recent discussion on alimentary or intestinal toxæmia special reference was made by several speakers to this point. Possibly the gestation cases might be due to a neurosis from uterine irritation, but additional evidence was needed. He had recently seen a married woman who had been the subject of herpes gestationis for limited periods during eight consecutive pregnancies, the cutaneous lesions developing after persistent and severe itching for several weeks. Bullæ were stated to have first appeared upon the abdomen and thighs, usually about the fourth or fifth month onwards, and then to have extended to other parts, varying in number and size, some declining while others developed. Invariably the eruption subsided spontaneously after delivery. The pigmentary staining consequent upon so many attacks was very remarkable.

The associated conditions reported to stand in causal relation to dermatitis herpetiformis were various. Nervous exhaustion with vital depression, in whatever way produced, could not fail to act as a predisposing influence, but as this was common to many diseases it was insufficient without a determining factor, an auto-intoxication, through the medium of the nervous system, to produce the characteristics of this disease. The nature of this had not been determined. Whether, therefore, the eruptions classified under the heading of dermatitis

herpetiformis were due to one cause, or whether they should be regarded as variants of one morbid entity, with their present limited knowledge it was impossible to say.

He agreed with Dr. MacLeod that the evidence they possessed justified the conclusion that hydroa aestivale was distinct from dermatitis herpetiformis. He handed round a photograph of an interesting case of this disorder which recurred annually for many years, and curiously was associated with a similar development on the ears of his twin brother. Impetigo herpetiformis was not improbably allied to dermatitis herpetiformis, but the relationship, as yet, was not clearly understood.

On the subject of treatment it was essential to bear in mind that there were two distinct but interdependent conditions to be dealt with—viz., (1) the substantive disease proper with the constitutional symptoms it produced, and (2) the cutaneous manifestations, which were of secondary character and of varying intensity, the location of which depended upon local structural conditions—i.e., the degrees of resistance in the cutaneous tissues of different individuals. Bullous diseases could not be regarded as limited to the skin and its appendages, for they were in fact general systemic disorders of *toxic nature*, the surface manifestations, of whatever degree, constituting the secondary local expressions only. To combat the former a treatment based upon the principle of elimination must be adopted, and in addition the functions of metabolism, in relation to proteid substances especially, had to be regulated. For this purpose a selected diet was needed consisting largely of milk. Efficient and repeated purgation was essential, with frequent water drinking. Lavage of the colon had been recommended. Derangements of stomach, liver, and kidneys must be corrected. Of the many drugs suitable for internal administration, quinine, strychnine, salicin, salicylate of soda, and ichthyol, with intestinal antiseptics, were among the most reliable. Arsenic, however, although not a specific, had proved of the greatest value in many cases and was advocated by experienced observers, but a liberal administration of the drug in gradually increasing doses was needed. Sir Malcolm Morris had already emphasised that point. Dr. Whitfield had reported a case in which recovery took place after the continued administration of the solution of arsenic in 20-minim doses. Two articles published in the *British Medical Journal*, in 1897 and 1899 respectively, by the same writer were worthy of special study. They were entitled "A Personal Experience of the Disease (Dermatitis Herpetiformis) by a Physician." Recovery in his instance was attributed to the persistent administration

of the arsenical solution with dialysed iron. Opium was stated to have relieved the itching when morphia failed. Arsenic in the limited doses admissible in herpes gestationis was of lesser value, but the indications for its use were comparatively small. The X-rays had been applied in localised types¹ but this was not desirable if the disease was general. Personally, he had had no experience in this direction.

The local treatment consisted in emptying the blebs at once, which all sufferers agreed greatly relieved the irritation, and applying sedatives and antiseptics in the form of medicated baths, fomentations, lotions and ointments. If baths were used prolonged submersion was desirable. Nearly all the local medicaments required could be conveniently applied and mixed with a soluble medium, menthol and carbolic acid, 2 per cent. of each in this form, being of much value. Painting the affected areas with a solution either of carbolic acid, iodine, or nitrate of silver, frequently controlled the severity of the itching. Lastly, antiseptic absorbent dusting powders should be freely applied, care being taken to prevent the formation of crusts, which always added to the distress of the patient.

Mr. WILLMOTT EVANS said that there were only two points which he wanted to mention, the first being the question as to whether there was such a disease as dermatitis herpetiformis. There were certainly typical cases which corresponded with the classical description, cases which were perfectly distinct in appearance and character from pemphigus. And there were cases which completely filled up the interval which was held to separate the two diseases; so that it was very difficult to draw a sharp line between them. He regarded the conditions under these names as two extremes of what was probably the same disease, though that did not mean he considered dermatitis herpetiformis was always due to a single cause. Probably most of the cases were toxic in origin. He would not like to say that none were infective, though by that he did not mean they were due to local infection by micro-organisms. He thought it likely that some internal blood infection was responsible for the skin lesions, either directly or through the nervous system. Secondly, with regard to treatment, all who had had experience of the disease recognised that arsenic was of extreme value in many cases; in fact, it seemed to be almost the only drug which would give a measure of comfort to these patients.

¹ Half-pastille doses once a week and repeated.

There was, however, another drug, not mentioned by any previous speaker, which he considered of equal value, and that was antimony, which might either be alternated with arsenic or combined with it; 3 minims of the vinum antimoniale might be given, and it might be increased to 10 or 15 minims if the patient was kept in bed, without producing any harmful effects; yet it had a marked influence on the disease, especially in allaying the itching.

Dr. S. E. DORE said that he had noticed a statement recently, in one of the American journals, that Duhring himself had seen only twenty cases of dermatitis herpetiformis in fifteen years. If that were so, Dr. Graham Little was to be congratulated on having seen thirty cases, and it was not to be wondered at that some of them were hampered in this discussion by the small number of cases they had had the opportunity of observing. As far as his experience went, dermatitis herpetiformis was more common in private than in hospital practice, and this fact, taken with others, might point to a neurotic origin of the disease. He was particularly interested in Dr. MacLeod's reference to the occasional association of dermatitis herpetiformis with herpes zoster, and thought it possible that as the latter disease was due to a gross lesion of the posterior root ganglia, so dermatitis herpetiformis might be due to an undiscovered lesion of the peripheral nerves or nerve-endings. Another interesting fact was that dermatitis herpetiformis could, in some cases, be controlled by exact doses of arsenic. He had had the opportunity of observing a case of Dr. Pringle's in the Out-patient Department at Middlesex Hospital, in which the patient, a young man, had severe dermatitis herpetiformis, and whose eruption was immediately controlled by doses of 6 minims of arsenic three times daily, smaller doses being quite futile in preventing outbreaks of the eruption. There were, in medicine, many parallel cases of diseases being controlled by drugs, such as epilepsy by bromides, myxœdema by thyroid substance; and although there were other explanations of this action, it was possible to conceive that there might be a deficient secretion in patients with dermatitis herpetiformis, the production of which was stimulated by the administration of arsenic. A point upon which he thought insufficient stress had been laid in differentiating dermatitis herpetiformis from pemphigus was the maintenance of good general health in the subjects of the former disease. They were weakly and neurotic, but were usually able to get about and do their ordinary work; whereas the subjects of pemphigus were often bedridden and showed symptoms of severe systemic infection.

Dr. F. PARKES WEBER said that, granting the existence of dermatitis herpetiformis as a disease, he would like to ask whether they could recognise any local conditions which might be regarded as minor forms of the disease. He would first allude to the conditions which had been described as recurrent herpes zoster, or as rare varieties of catarrhal herpes. He had become acquainted with a few such cases in women, and possibly the attacks, which might go on occasionally recurring for years, in the gluteal region, for instance, might be regarded as constituting a minor and localised form of dermatitis herpetiformis. In May, 1907, he saw a woman, aged 63, of a rather nervous type, who had marks on the right gluteal region which resembled the remains of a mild attack of herpes zoster. She said she was subject to such (herpes-like) attacks, which were always localised on the right gluteal region. Her first attack had occurred about thirty years previously after a severe illness (diphtheria). At one time, however, she had remained free from the attacks for several years. The eruption was usually preceded by neuralgic pains, chiefly in the right leg, but not in the buttock itself. The eruption usually lasted a few days and formed scabs. A woman, aged 57, whom he saw in July, 1907, had a patch of herpes on about the middle of the right buttock, and she told him that she had had a similar patch in the same position in July, 1906. A delicate-looking woman of nervous type, aged 46, whom he saw in August, 1909, had three herpes-like clusters about the centre of the left buttock. She had had similar attacks resembling herpes zoster on the left buttock and left leg, once two years previously in London and once six years previously in Italy. On each occasion he believed the eruption lasted about three weeks. He had heard privately of cases of recurrent eruptions resembling herpes, of various distribution. A young medical friend of his had told him that he was liable to a vesicular herpes-like eruption on both hands (ulnar distribution), which tended to occur about August. Many recorded cases of apparently "recurrent herpes zoster" were referred to in an annotation in the *Lancet*, April 12, 1902, p. 1050. In his paper on "Recurrent Herpes of the Buttock."¹ Dr. H. G. Adamson regarded the cases he referred to as belonging to the catarrhal or febrile class of herpes rather than to true herpes zoster, and to the same group he assigned certain cases of herpes of the fingers.² Amongst other papers on recurrent herpes of the buttocks and various

¹ *Brit. Journ. Derm.*, 1911, xxiii, p. 322.

² *Ibid.*, 1909, xxi, p. 323.

parts of the body were those by Dubreuilh and Dorso (1901), Dubreuilh (1905 and 1907), E. Delabost (1909), and Leclerc and Colombet (1909). In his paper on "Menstrual Eruptions,"¹ Paul Opel referred to various cases of recurrent gluteal herpes, &c.

Another class of case was that already referred to by Dr. W. K. Sibley—namely, "recurrent neurotic ulcers of the mouth." He had seen one or two cases himself and could confirm Dr. Sibley's description of that condition. Besides Sibley's writings on the subject he had come across an excellent account by Löblowitz.²

Thirdly, the minor forms of recurrent summer eruption affecting the back of the hands, and known as so-called "summer prurigo" or "summer acne," might be mentioned in this connexion. Although such eruptions were often slight, they might worry the patients considerably.

With regard to arsenic, Dr. Weber had seen it produce typical herpes zoster on the right side of the chest, together with a generalised vesicular eruption of the trunk when it was being given to a patient for Hodgkin's disease.³ He could therefore quite well believe that arsenic might have been regarded as capable of producing a kind of dermatitis herpetiformis.

Dr. A. E. STANSFELD said that he would like to make one remark with regard to eosinophilia. Speaking from a general pathological experience, eosinophilia was a feature of a number of diseases; it was common in asthma and in infection by animal parasites, in bullous eruptions, and in some cases of urticaria. But his experience was that it was very inconstant in those conditions, even in such a well-defined disease as echinococcus infection. Therefore he thought one ought not to attach much importance to it in *defining* a particular disease.

The PRESIDENT said that he must admit that when he asked Dr. MacLeod to open a debate on the "pemphigoid" eruptions he had in his mind all primarily and essentially bullous eruptions which could not be clearly attributed to a definite microbic infection—such as

¹ *Derm. Zeitschr.*, Berl., 1908, xv, p. 91.

² *Arch. f. Derm. u. Syph.*, 1910, cii, p. 191.

³ See F. P. Weber, "The Occurrence of Acute Pneumonia during Treatment with Arsenic," *Brit. Med. Journ.*, February 15, 1913, p. 337 (Case II).

was the case with acute febrile pemphigus, the causal factor of which was the diplococcus of Demme, on which so much good work had been done in this country by Pernet and Bulloch.

In directing his observations almost exclusively to the disease generally known as dermatitis herpetiformis, Dr. MacLeod had, of course, the supreme authority of Besnier—whose view had been adopted by our own great Colcott Fox—but the speaker could not but think that such a restricted conception was regrettable as not fully representing the great field of their total—or nearly total—ignorance of the whole subject from the ætiological standpoint, on which alone true and sound distinctions must be based.

In the course of his admirable address Dr. MacLeod had, however, practically met this rather academic criticism by touching upon various points in a manner that showed that his definition was more of a working hypothesis than a confession of scientific faith. Everyone with any experience of dermatology would agree that the three cardinal features usually ascribed to Duhring's or Tilbury Fox's disease were so frequently associated as to constitute a very definite morbid picture recognisable to all as a definite clinical entity, and he held that it would be a retrograde step to abandon the generally adopted modern acceptance of this conception. He was able to endorse Sir Malcolm Morris's view that well-defined cases of classical type were certainly more frequent twenty years ago than they were now, and incidentally he shared Sir Malcolm's opinion that they were and probably would be again common during these times of national stress, as they had been during the Boer War. But of late years, both in hospital and private work he had certainly seen more cases which it had been impossible for him to definitely classify—that was, cases in which the borderland between dermatitis herpetiformis and other forms of non-microbic pemphigoid eruption was transgressed in various directions.

There could be, he thought, no doubt that the name of dermatitis herpetiformis had been bandied about far too indiscriminately, and he confessed to a certain amount of innocent merriment at frequently having seen at meetings such as this some cases pronounced by one authority to be typical cases of dermatitis herpetiformis and by another equally well accredited observer as characteristic pemphigus. For his own part, he knew typical dermatitis herpetiformis "by sight"; he did not know typical pemphigus in the same sense.

This discrepancy of opinion had been most frequently manifested in cases of pemphigoids occurring in children, and he shared the view

of Dr. MacLeod and other speakers, that many of these, which constituted the artificial group of "hydroa puerorum" (or rather hydroa infantum), were really vesicating urticarias.

The intensity of itching which accompanied the most typical cases of dermatitis herpetiformis varied within very wide limits, the agony so graphically described by Sir Malcolm Morris representing its extreme severity. But in many distinct cases itching might be trivial. He had never seen a case in which actual pain, as emphasised by Brocq, had been a prominent feature.

He looked upon the prognosis of dermatitis herpetiformis as attended by much greater gravity than was usually attributed to it. In the debate held in 1897 he had recorded two deaths: one in a lady aged over 70, who died of exhaustion from a universal bullous pemphigus, although the initial lesions were those of characteristic dermatitis herpetiformis; the other in a woman who had suffered many years from hydroa gestationis and who died of perforation of the intestine. Within the last year he had seen a precisely similar occurrence in a man, aged 58, whose primary lesions were mistaken for herpes zoster by an extremely competent physician; when he came under his observation he was as typical a dermatitis herpetiformis as fancy could picture; but his lesions rapidly became equally typical pemphigus and involved the mucous membrane apparently from mouth to anus only during the last month of his life. He died of perforation of the intestine after an illness lasting only a little more than four months. There was, unfortunately, no autopsy, but the cause of death was testified to by an authoritative physician who attended the case with him.

The other fatal case he had seen within the last year occurred in a middle-aged lady, a well-known artist, whose typical dermatitis herpetiformis lesions became markedly vegetative, and her disease proved fatal in six months; but he had no knowledge of the immediate cause of death.

One case common to Dr. Whitfield and himself in hospital practice presented at times fairly typical dermatitis herpetiformis, but at others her lesions, in their general characters, distribution, &c., were equally typical of pemphigus vegetans. There seemed now to be a consensus of opinion that eosinophilia was of little value as differentiating dermatitis herpetiformis from other pemphigoids; but on two occasions he had, oddly enough, found its absence of assistance in convincing dubious practitioners that their cases were examples of dermatitis artefacta and not of the condition the Section was discussing. In one of these cases

the simulation of the disease, assisted by poulticing and other ill-selected procedures in a nursing home, was extraordinarily successful.

Dr. MacLeod had, he thought, made a point of importance in saying that mild cases of dermatitis herpetiformis were often mistaken for eczema. In his experience the error was of frequent occurrence, but unfortunately its rectification brought little relief to the patient and as little satisfaction to the attendant physician.

On the subject of the pathogenesis of the pemphigoid eruptions he was inclined to entertain novel ideas, although he admitted the supreme importance of shock as a factor, but probably as an indirect one. He thought he had considerable evidence that many cases, he did not say all, were due to autogenous toxins originating in the alimentary canal. The evidence he possessed was certainly clearest in cases approaching the vesicating urticarial type; but he had notes of a few typical ones occurring in persons suffering from so-called "colitis," in which each successive outbreak of true dermatitis herpetiformis had been preceded or accompanied by emphatic aggravation of their gastro-enteric disturbance, almost invariably accompanied by peculiarly fetid stools, and in which a course of treatment by injections of autogenous *Bacillus coli* vaccines—in conjunction, of course, with other appropriate general and local measures—had yielded results of the most encouraging nature.

Dr. MACLEOD, in reply, thanked the President and Sir Malcolm Morris for their kind remarks with regard to the opening paper, and the other members of the Section for their valuable contributions to the discussion.

Sir Malcolm Morris had drawn attention to a most important point in connexion with the diagnosis of dermatitis herpetiformis—namely, that the vesicles were usually deeply seated. This feature had been observed from time to time in the clinical descriptions, and corroborated by several writers on the histo-pathology, who had found that the vesicles were situated not in the epidermis itself—as in eczema—but more often immediately beneath it, with the whole of the epidermis for a roof.

Dr. George Pernet had taken exception to the term "pemphigoid," and with this criticism the speaker was in complete agreement. It seemed to him that there were few terms ending in "oid" which were satisfactory, and that it would be no great loss to medical literature if they disappeared; still, the term had been employed in a restricted

sense by Besnier, Colcott Fox, and others, and on their authority had now come to be recognised as referring to that type of case which at the present time was most commonly placed under Duhring's heading of "dermatitis herpetiformis." With regard to Dr. Pernet's opinion that the eruptions classified under this heading were not due to one cause and were not variants of one morbid entity, as the cause was at present unknown there was no answer to the first of these views; but the speaker was of opinion that, in the present state of our knowledge, the clinical features of the eruption suggested a common morbid process, and that the differences met with in them could be most easily explained as variations in degree of intensity in one type of cutaneous reaction, which might be modified by secondary considerations such as traumatism, the inoculation of micro-organisms, and the peculiarities of the affected skin.

Dr. Sibley believed that the complaint was a tropho-neurotic condition, and in corroboration of this view referred to the cases in pregnant women. The speaker did not consider that the ætiological connexion between pregnancy and this class of eruption necessarily proved a tropho-neurotic origin, as the relation might be equally well explained on the ground of a toxæmia probably acting indirectly on the skin through the nervous system. With regard to the employment of morphia in cases of this type, the speaker had not recommended it; he had simply referred to it among other drugs which had been occasionally used with reported benefit. He had recently seen in consultation an old-standing case of dermatitis herpetiformis, associated with the most intense subjective symptoms, amounting at times to pain. The patient, a lady, had been confined to bed for several weeks on account of the severity of the attack, and was much reduced and in a seriously neurotic condition from want of sleep; in consequence he had recommended large doses of salicin. About a fortnight later he had seen the practitioner in charge of the case, a most reliable observer, who reported that she had obtained no benefit from the salicin, but that on his own responsibility he had given a hypodermic of morphia which had resulted in a considerable improvement, which had been maintained. He was quite in agreement with Dr. Sibley that the employment of morphia as a routine treatment in such cases was strongly to be deprecated, but considered that its occasional use under proper medical supervision might be advisable should the severity of the symptoms demand powerful measures.

Dr. Stowers, in discussing the relation of eosinophilia to dermatitis herpetiformis, referred to the statement that eosinophiles were

abnormally abundant in some cases of leprosy. This had not been the speaker's experience, and he was inclined to think that the reported increase must be due to some individual peculiarity, and was not in any way a constant feature or significant of the disease. With regard to the sex-incidence of dermatitis herpetiformis, the cases analysed had shown the disease to be equally common in males and females. Dr. Stowers had misunderstood the speaker, as the figures referred to by Dr. Stowers should read "of the twenty-four cases reported by Meynet seventeen were in males and seven in females." There was some doubt, however, about those cases, as they occurred in children, and the speaker was in agreement with Dr. Adamson that the majority of the cases which had been described as dermatitis herpetiformis in children were really examples of chronic pemphigus.

With regard to Dr. Whitfield's protest against the idea that all cases of pemphigus which were pruritic were in reality dermatitis herpetiformis, the speaker was inclined to adhere to the opinion that, in the present state of knowledge, the occurrence of intense itching should be regarded as pathognomonic of dermatitis herpetiformis in differentiating it from chronic pemphigus. He agreed with Dr. Whitfield, however, that the presence of eosinophilia and the therapeutic reaction with arsenic were of no value in diagnosing it from that affection.

In reply to Dr. Little's criticism of the omission of recurrence as a cardinal feature of the eruption, the speaker had done this purposely, as it was also a characteristic of chronic pemphigus, which he believed to be a different disease, but he had referred to it in his note on the course of the affection. He did not think that the classification suggested by Dr. Little was adequate, as according to it chronic pemphigus and dermatitis herpetiformis were included together under Tilbury Fox's old name of hydroa pruriginosa, the objection being that in the papular type of dermatitis herpetiformis the name "hydroa" was inappropriate, while in his experience chronic pemphigus was not pruriginous. He also considered that the grouping of the two affections under one heading was a retrogression rather than an advance. He was at one with Dr. Little in attaching no importance to eosinophilia either as a means of differentiation or as an index of the severity of the symptoms.

He did not agree with Mr. Willmott Evans that the occurrence of intermediate cases which seemed to form connecting links between chronic pemphigus and dermatitis herpetiformis could be taken as sufficient evidence that there were not two diseases, any more than that the cases of seborrhœic dermatitis which were difficult to diagnose from

psoriasis proved, as had been asserted, that psoriasis and seborrhœic dermatitis were variants of the same affection.

He had not had the same experience as Dr. Dore that dermatitis herpetiformis was more common in private than in hospital practice, and believed that any apparent preponderance might be due to private patients seeking advice more readily for mild degrees of it than patients of the hospital class.

Dr. Parkes Weber had drawn attention to the cases of so-called recurrent herpes zoster. These the speaker did not regard as minor forms of dermatitis herpetiformis, but believed them to belong to the class herpes febrilis. The recurrent ulcers of the mouth referred to by Dr. Sibley and Dr. Parkes Weber he also believed to be unconnected with dermatitis herpetiformis and more nearly related to febrile herpes, and possibly caused reflexly in some instances by a disturbance of the gastric mucosa.

In his remarks the President had referred to the too indiscriminate employment of the diagnosis of dermatitis herpetiformis, and with this the speaker was in entire agreement, as he had from time to time seen cases exhibited under that heading which did not present the cardinal features as described by Tilbury Fox and later by Duhring. He had also pertinently pointed out that certain mild cases were liable to be missed and placed under the heading of eczema. The speaker was also in agreement with the President in regard to an autogenous toxæmia as a most important factor in the pathogenesis, and was much interested in his reference to the cases in which the disease had been associated with some form of gastro-enteric disturbance.

Dermatological Section.

June 17, 1915.

Dr. J. J. PRINGLE, President of the Section, in the Chair.

Case of Mycosis Fungoides ; Tumours appearing during X-ray Treatment.

By E. G. GRAHAM LITTLE, M.D.

THE patient was a lady, aged 25. For three years she had suffered from a scaly eruption of the limbs and trunk, rather more plentifully distributed on the flexor surfaces, which had been diagnosed as psoriasis by several general practitioners. Various treatments had been applied, including chrysarobin, but without permanent success. Itching had not been a marked feature prior to the application of X-rays, which had apparently effected a remarkable change in the conditions. This treatment, devised for the "psoriasis," had been commenced in the middle of February of this year by a general practitioner in North London, who had given exposures over the whole surface of the body, in dosages which could not be ascertained, at intervals of a week or fortnight, the actual dates being February 16 and 23, March 9 and 23, April 6, 20, and 27, May 4, 11, and 19. During the course of this treatment—but not before it was undertaken—glandular enlargements in the axillæ, on the trunk three inches below the axillæ, in the neck and in the groin, were noted. It was deemed advisable to apply extra doses to these swellings, but as, notwithstanding, they increased in size and a tumour appeared in the pubic region, the patient consulted Dr. Godfrey, of Finchley, under whose care she had been at some time previous to the application of X-rays, and the exhibitor saw the patient in consultation with Dr. Godfrey on May 26, when the diagnosis of mycosis fungoides was proposed. At this date there was a tumour the size of a small walnut on the right side of the mons veneris, with unbroken surface, and another much smaller swelling the size of a Barcelona nut, on the anterior wall of the left axilla. On the neck, the upper arms, the chest and abdomen, there were some circinate scaly

patches, very reddened and infiltrated, and bearing signs of intense itching. The scalp was extremely scurfy all over. The face was puffy and red, and there was a general redness over the greater part of the body, which, as it had not been present before application of the X-rays, was ascribed to this cause. The entire surface was tender, so that combing the hair, for example, was a painful operation, and the patient found difficulty in obtaining comfort in any posture, while her sleep was disturbed. She was seen again on June 15, when all these symptoms were accentuated, and the tumour in the wall of the axilla had grown to the size of a tangerine orange but was still unbroken; a new tumour which had reached the size of a walnut had made its appearance on the back of the neck, and there were some small new tumours elsewhere. The patient was menstruating and did not wish to show the pubic tumour, which was reported to be steadily growing larger. There was general enlargement of glands.

It was, of course, open to doubt the diagnosis of psoriasis, and it was, in fact, probable that the earlier manifestations of disease which had been regarded as psoriatic had been really premycotic stages of mycosis fungoides. Howard Fox had, however, reported an instance of development of mycosis fungoides in an undoubted case of psoriasis, so that the metamorphosis was not unprecedented. But the interest of this case was enhanced by the very definite history vouched for by Dr. Godfrey, a practitioner of great experience, that there had been no glandular or other swellings until the application of the rays, and it seemed significant that the tumours had in fact appeared in areas where additional dosages of the rays had been given. Under these circumstances, which were sufficiently disconcerting, the exhibitor had not thought it wise to recommend the continuance of X-ray treatment, which might otherwise be one's first resource in such a case.

The general consensus of opinion expressed at the recent debate on mycosis fungoides seemed to be that X-rays were palliative rather than curative of the disease; Dr. Galloway had voiced a very general opinion in his summing up: "Considerable doubts evidently remain as to the possibility of cure by means of X-rays. There was no doubt that cases had recurred after the use of X-rays. Possibly the safest line in X-ray treatment was to confine it to the destruction of the actual tumours as they appeared."¹ In this case the greatest growth had been in parts treated with the rays, so that even the very limited use recommended by Dr. Galloway seemed undesirable.

¹ *Proceedings*, 1914, vii, pp. 215, 216.

DISCUSSION.

The PRESIDENT did not think that, on the whole, the original diagnosis of psoriasis held good. Among other points, the lesions were almost entirely flexural in distribution, while the tips of the elbows and the knees were markedly unaffected. He was personally of the opinion that the early eruption was a so-called "pre-mycotic" one. But he invited an expression of opinion as to the rôle played by X-rays in the production of the tumours, which he believed to be *nil*; and, arising out of that, the question occurred whether the continuation of treatment by X-rays would be justifiable. The number of the tumours and the extensive erythrodermia seemed to him to contra-indicate operation. He would expressly exonerate the practitioner from any blame for using X-rays in the case, and, indeed, he regarded such treatment as the only possible means of arresting or mitigating the severity of the disease.

Dr. SIBLEY said the wording of the title of the case gave the impression that Dr. Little considered the X-rays to have been the cause of the mycosis fungoides. He (the speaker) would suggest that the X-rays were a coincidence and that the patient had had a pre-mycotic dermatitis, for she said the rash had been very irritable for many months and was on the flexor surfaces: it had not been psoriasis. He did not consider she now had any evidence of X-ray dermatitis; the inflammation was fairly evenly distributed and nowhere localised. He advised pushing doses of X-rays on the tumour areas.

Dr. G. PERNET had no doubt as to the case being one of mycosis fungoides throughout. The fact that the tumours had developed after the application of X-rays he regarded as an accidental circumstance, not as a sequence of cause and effect. It was evidently a virulent case, as the tumours were forming rapidly. He recommended pushing the rays as practically the only method of treatment. He did not recommend salvarsan, as it was not successful in a somewhat similar case of his own. He thought it would be a help first of all to remove the tumours surgically.

Dr. DORE said it was difficult to explain the apparent failure of the X-rays unless one knew the details of the treatment. His view was that the tumours had appeared not because of, but in spite of the X-rays; and he thought it would be a pity to withhold the most efficacious form of treatment known for this disease.

Dr. SEQUEIRA agreed that the outbreak of tumours was fortuitous; he did not regard it as connected with the application of the X-ray treatment. He also recommended the pushing of X-ray treatment.

Dr. ADAMSON said that he would continue the X-ray application as that treatment was the only one which offered any hope of a cure. But he thought it would be well to ascertain first of all what doses of rays had already been given.

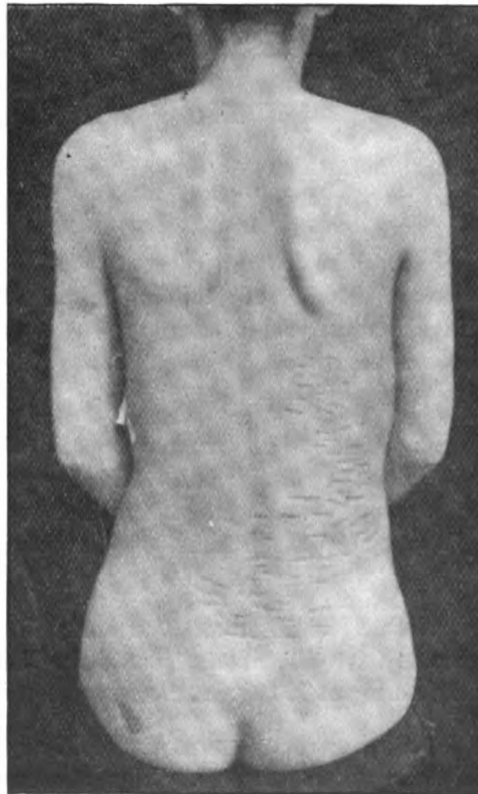
Dr. GRAHAM LITTLE, in reply, thanked members for their views, but the impression was so strong in the mind of the patient that the rays were the cause of the tumours, that any untoward progress would be attributed to the rays; hence he did not feel inclined to follow the advice tendered.

Case of Acute Striæ Atrophicæ.

By E. LAMING EVANS, F.R.C.S.

(Introduced by P. S. ABRAHAM, M.D.)

THE patient, aged 19, was a soldier who was wounded by a rifle grenade, in France, on March 12 last. He was admitted into the Orthopædic Hospital on April 12 with two discharging sinuses below and external to the left nipple. He was radiographed a few days later,



Acute striæ atrophicæ in a case of shrapnel wound of the thorax.

and on April 17 an operation was performed, a piece of metal being extracted from the lower sinus. The wounds made satisfactory progress. The patient was allowed up, but about five days later—i.e., May 25—he began to complain of severe headache, with a temperature of 100° F., and was therefore sent back to bed. There were no physical signs in the chest, abdomen, or central nervous system to account for his headache, but within a few days of his return to bed curious skin lesions made their appearance on the posterior aspect of the right lower chest and lumbar regions, and to the left of the mid-line in the lumbo-sacral region. The lesions consisted of areas of localized atrophy of skin running mostly horizontally, the floor of each area being pink with fine vessels like scar tissue; they strongly resembled *striæ gravidarum*. The patient complained of pain in the region of their distribution. The atrophic areas all appeared within two or three days, and after that no fresh lesions were observed. Headaches persisted for about a fortnight, and the temperature varied between normal and 101.2° F. during this time, the lesions meanwhile becoming much paler. The blood showed moderate leucocytosis; Widal's reaction and the Wassermann reaction were negative. The urine was normal. The patient had always had very good health, and gave no history of any serious illness.

DISCUSSION.

The PRESIDENT thought the lesions would be most correctly described as *linæ* or *striæ atrophicæ*. In true acute atrophoderma (as the case had been named) there were extensive areas of atrophy of skin, preceded by patches of redness (not streaks), the nature of which it was usually impossible to determine. The severest case of the kind exhibited he had ever seen was in a middle-aged man who seemed otherwise in perfect health, but was neurasthenic and somewhat hysterical. He had not had typhoid fever, nor any ascertainable toxæmia. He had the condition to an extreme degree over his trunk, thighs, buttocks, and shoulders, but it was not connected with sudden disappearance of fat or any pre-existent stretching of the skin.

Dr. H. G. ADAMSON thought it a typical case of *striæ atrophicæ*, though the distribution was unusual.

Dr. F. PARKES WEBER said he considered this to be anatomically an absolutely typical case of *striæ atrophicæ*, or, as some preferred to call it, "*linæ atrophicæ*." In most cases the condition was the result of distension of the skin by œdema or fat, but in the present case the ætiology was obscure, and the distribution was nearly unilateral, affecting the thoracic and lumbar regions of one side. He had seen two such cases in which the *striæ atrophicæ*

were quite or mainly unilateral, but in both there was intrathoracic disease present. Dr. H. D. Rolleston¹ published an illustration of a case in which the striæ atrophicæ (more numerous on one side than on the other) were associated with malignant disease of the pleuræ and peritoneum. In regard to Dr. Adamson's remarks, he did not think there was any connexion between striæ atrophicæ and macular atrophy of the skin; he regarded them as totally different states, so much so that, if the two were seen in the same patient, he would regard the association as a chance coincidence. He suggested that in the present case the almost unilateral distribution of the striæ might be accounted for. The patient had had a severe wound with fever and constitutional symptoms which, like typhoid fever and pneumonia and cachectic conditions in general, in some unknown way favoured the development of cutaneous striæ atrophicæ. The position of the patient in bed probably determined the localization of the striæ by rendering the skin more tense on one side than on the other.

Dr. GRAHAM LITTLE said this case was very much like one he showed at the Section² in a schoolboy from Haileybury, whose attack came on after mumps. He had striæ in much the same position, only lower down and on both sides; the condition came on acutely.

Dr. P. S. ABRAHAM said that Mr. Laming Evans kindly asked him to see this case a few days after the lesions appeared. "Lineæ" or "striæ atrophicæ" were, of course, usually the result of some abnormal distension or stretching of the skin during pregnancy or after a rapid fatty or other growth beneath the skin—they were, in fact, "symptomatic." Nothing of the kind, however, took place in this case; the atrophic lines were "idiopathic." Acute cases of the kind were extremely rare on the back, and very few had been so far recorded. The case most resembling the present one was described in the *British Journal of Dermatology* in 1891,³ by Dr. Barrs, of Leeds, the condition following an attack of pneumonia, the striæ appearing in the lumbar region and being accompanied with considerable pain. Several others had been seen after typhoid fever—in the emaciated skin of the abdomen, and more often on the thighs. In this case it was difficult to connect the lesions which were situated in the right dorso-lumbar region with the shrapnel wound of the left side of the thorax; nor could they put them down to any recent acute constitutional disease. The patient was inoculated against enteric last October. A skiagram of the left side of his chest was taken a month before the condition appeared, but it was not likely that that had anything to do with it. He particularly asked the Sister of the ward whether the man was accustomed to lie on that part of the body or to scratch or press upon the skin there with his fingers, and the answer was in the negative.

¹ H. D. Rolleston, "Case of Remarkable Striæ Atrophicæ due to Cachexia," *Brit. Med. Journ.*, 1908, i, p. 494.

² *Brit. Journ. Derm.*, 1912, xxiv, p. 70.

³ *Brit. Journ. Derm.*, 1891, iii, p. 152.

Dr. DAVID WALSH thought that if that kind of lesion was due to lying for a long time in one position it should be extremely common; he did not, however, remember having seen a case of the kind before. In this case he presumed it was connected with the wound, and probably great violence had been applied to the left ribs. There might be some question of the occurrence of *contre-coup* on the right side, and of the diffused force injuring the nerve terminals or arteries, or nerves or other tissues, and in that way producing a series of subcutaneous scars without definite anatomical distribution.

Case of Oriental Sore (after Treatment).

By P. S. ABRAHAM, M.D.

THE patient, a young man, went to the Persian Gulf last October, and in February he observed small sores on his leg and arm, which he attributed to mosquito bites. These increased in size, and he was advised by his friends to consult a native doctor, who applied some powder; but the lesions increased in size and became crusted ulcers. Five weeks ago the one on the leg measured $3\frac{1}{2}$ in. by $2\frac{1}{2}$ in., the other on the arm was slightly smaller; they both had a sinuous outline and were thickly covered with a dark crust. He scraped them thoroughly with a spoon, and immediately afterwards applied pure phenol with a brush, as he had adopted those measures with success in a similar case some years ago. Most people who saw this case had an idea that it was syphilitic; but oriental sore, of course, had nothing to do with syphilis. These sores were due to inoculation with Leishman-Donovan bodies, probably through some insect or intermediate host. After the operation, he sent the material to Dr. E. H. Ross for examination, but it was unfortunately lost. The scars left by the lesions were typical; they were slightly depressed, and as in this case often pigmented. There was an idea in the East that a single attack prevented a recurrence. The patient informed him that at Buzrah the people called them "date sores," as they were particularly common in the date season.

Dr. Abraham had to thank Dr. Sortain Hancock for the opportunity of seeing and treating the case.

Case of Pigmentation of Skin for Diagnosis (? Arrested Addison's Disease).

By J. A. NIXON, M.B.

THE patient was a man, aged 33, in whom spontaneous universal pigmentation had developed during the last six years, until, at the present time, the whole body was of a dark brown tint, resembling the skin of a native of India. The man dated his condition from an attack of dyspepsia, with neurasthenic symptoms, six years ago. Immediately afterwards he noticed a gradual bronzing of the skin which was exposed to sunlight; and exposure to the sun always increased the intensity of the pigmentation. During the winter, or whenever he stayed indoors, there was a slight fading. There was also staining of the mucous membrane of the cheeks and tongue. At present there were no other signs of disease about him; no syncopal attacks nor asthenia, and no loss of weight. The exhibitor associated the condition with an attack of acute dyspepsia. Possibly at that time there was an inflammatory lesion which involved the region of the suprarenals and the solar plexus.

DISCUSSION.

Dr. SEQUEIRA said that in 1910 he showed a man, aged 30, suffering from melanoderma, closely resembling the condition of Dr. Nixon's patient.¹ The interest of his case lay in the fact that the blood was typical of pernicious anæmia. The patient was extremely wasted, and lost all his hair and nails. Blood examination showed that only 1,135,000 erythrocytes, and poikilocytes, normoblasts and megaloblasts were present. The Section would be interested to know that under injections of arsacetin the condition of the blood gradually improved, and ultimately the red cells increased to the number of 6,000,000. The skin itched intensely and blebs formed. The patient had been seen recently and was now quite well. The pigmentation had disappeared and the hair was well grown. In reply to Dr. Parkes Weber, Dr. Sequeira said he had considered the case to be due to adrenal disease. He suggested that Dr. Nixon should make regular examinations of the blood-pressure in his patient and observe the effect of the administration of adrenalin.

Dr. F. PARKES WEBER suggested that the illness six years ago was not ordinary dyspepsia, but was a severe affection of the suprarenal

¹ *Brit. Journ. Derm.*, 1910, xxii, p. 391.

capsules, giving rise to vomiting and asthenia, as met with in Addison's disease. Gradually compensation had been developed and the patient had more or less recovered from the most severe and dangerous symptoms of the suprarenal (Addison's) disease. The most striking symptom of Addison's disease was, however, the pigmentation of the skin and mucous membrane of the mouth. This had progressed to an extraordinary extent in the present case, in spite of the patient's recovery from the graver symptoms (vomiting and asthenia). It was noteworthy that in the most acute forms of Addison's disease pigmentation might be quite or almost absent, though it might gradually develop later on if the patient survived long enough.

Dr. ABRAHAM said that some years ago he was asked to see a somewhat similar case, an old man, an Englishman, who was even blacker than this patient; he looked more like a negro; the hands and all the upper part of the body were black. His first view was that the condition was argyriasis, but he could find no evidence of this nor of any other disease. With the exception of the discoloration, the man apparently was, and had been, in perfect health. He died a year or two afterwards of bronchitis. Permission for a post-mortem examination could not be obtained.

Dr. WALSH said the picture presented by this case did not at all correspond with Addison's disease in its typical form; reversion to an ancestral type of skin might be considered as an alternative explanation. The pigment in the deep cells of the epidermis possibly pointed to the time when our remote ancestors were black; he had not heard of any other explanation of the presence of pigment in the epidermis. It was admitted that some other skin conditions, such as ichthyosis, might be an expression of atavism.

The PRESIDENT, referring to Dr. Walsh's remarks, said that the patient had never had any coloured ancestors; even if he had, their mucous membranes would not have been coloured or pigmented as his were. He had thrown out the suggestion, which he was glad to hear so ably supported by Dr. Parkes Weber, that the case was one of arrested Addison's disease. He had an example of a similar occurrence under his observation at the present time in a man, aged 27, who had all the signs and symptoms of unquestionable Addison's disease three years ago, but these had apparently undergone spontaneous arrest about a year ago. The patient was a Hindu, but the tint of his skin had assumed that of a negro, whilst the pigmentation of his gums and oral mucous membranes was very dark. A course of treatment for recent syphilis by salvarsan and mercury had provoked no fresh symptoms of his original ailment.

Dr. SIBLEY said the man told him he had black gums long before the discoloration of the skin commenced. He evidently had, at one time, or still had, lichen planus, which had been called shingles, over his back, and there were several typical deeply pigmented lesions of lichen planus about on other regions. He was not prepared to say this had anything to do with the general pigmentation.

Case of Morphœic Sclerodermia.

By GEORGE PERNET, M.D.

THE patient was a girl, aged 14. The disease began a year ago on the outer side of the right thigh. When first seen at the West London Hospital in July, 1914, she presented two somewhat sclerosed patches in the above-mentioned situation. They were surrounded by an extensive "lilac" area, where the skin was coarse-grained. Over the corresponding area of the left thigh there was a certain amount of coarse graining of the skin. The disease had progressed on the right side and fresh areas of sclerosis had appeared above the original morphœic patches. Now, too, there were morphœo-sclerosed patches on the left thigh. The treatment had consisted in the administration of thyroid extract internally, and olive oil well rubbed in locally. Notwithstanding this the disease had extended, but over the original area there had been improvement so far as the actual thickening was concerned. The very wide margins of the "lilac" discoloration and the coarse graining of the skin were features of special interest.

Case of Extra-genital Primary Syphilis of the Wrist.

By GEORGE PERNET, M.D.

THE patient was a boy, aged 15, who first attended, on June 4, for an extensive characteristic secondary papulo-lenticular rash, with bad ulceration of the throat and typical adenitis. There was no evidence of anything in the shape of a primary lesion about the genitalia. But on the radial side of the extensor surface of the right wrist a raised lesion, the size of a sixpence, was noticed. This was indurated, more or less flatly convex, and had resulted from an injury due to a pointed piece of wire (molybdenum wire for electric lamps, the patient said). This had increased in size and festered, and had not responded to any ordinary form of treatment. The injury originally occurred three months previously, and the rash had been present about a fortnight or more when first seen. This lesion was evidently the primary sore, and, on investigation, the corresponding axillary glands were found to be indurated and much enlarged "*en paquet*." But the right epi-

trochlear gland was not affected, this being explained by the situation of the primary sore on the radial side of the wrist. Had the original sore been on the ulnar side, then the corresponding epitrochlear would have been involved. The left axillary glands were slightly enlarged only, and the left epitrochlear was not affected. He was ordered some mercury, and on June 6 he was given 0.15 gr. neo-kharsivan (B. and W.), a small dose, but after the intravenous injection his temperature went up to 104° F. All the symptoms, including the primary sore, had improved when shown on June 17. As to the source of the infection of the wrist injury, the only thing that could be elicited was that there had been a lodger in the house who had some bad skin trouble. The site of the original injury had not been sucked.

Dr. ALFRED EDDOWES said he knew the case of a young man who contracted syphilis, and whose father a few weeks afterwards developed a chancre on the wrist. When asked how he got it, he replied that he caught his wrist on a nail that was projecting from the arm of a chair. The husband conveyed the disease to his wife; so that within a few weeks three members of a family of four were suffering from acute syphilis.

Blue Tattooing of the Skin from Hypodermic Injections of Morphine.

By F. PARKES WEBER, M.D.

THE patient was a woman, aged 67, a morphinist, who from the age of 27 to the age of 59 had been accustomed to take morphine, almost entirely by the mouth, up to 8½ gr. *per diem*. She then entirely discontinued taking the drug until after an operation for gall-stones, about four years ago, when she got into the habit of giving herself hypodermic injections of morphine and atropine. Since then she had usually, in the course of every day (twenty-four hours), injected from 1½ gr. to 3½ gr. of morphine sulphate, together with from ¼ gr. to ⅙ gr. of atropine sulphate under the skin of her upper extremities or the upper part of the front of her chest. At the present time the skin of these regions had a stippled appearance from innumerable minute bluish spots, each bluish spot marking the site of a former hypodermic injection.

These bluish spots constituted a kind of tattooing; probably some iron substance derived from the needle of the hypodermic syringe had

on each occasion remained under the skin. Similar bluish spots in the skin of a morphinist (a man) under the care of Dr. Francis Hare were due, as Dr. Hare kindly informed Dr. Weber, to minute carbon particles introduced under the skin with the hypodermic syringe, as the patient had been in the habit of disinfecting the needle of the syringe in the flame of a wax match or of a wooden match. In fact, in that case the bluish spots were due to a genuine blue-black tattooing, since for that purpose the finest quality of Indian ink or Chinese ink (which consisted of very minute particles of soot or carbon) was, Dr. Weber believed, usually employed. Dr. Hare's patient had been distressed in regard to the presence of the bluish spots, for he regarded them as very "tell-tale," and likely to prevent him from obtaining a desired appointment. In Dr. Weber's case, though the bluish spots exactly resembled those produced by tattooing with carbon particles or Indian ink, it seemed far more probable that they were produced by minute iron particles from the hypodermic needle, since the patient had always cleaned the needles, she said, by washing them out with hot water, and had never disinfected them in any flame. Similarly, workers in some trades developed blue marks in the skin from the entry of particles of iron.

In addition to the bluish spots the patient had a few little hard fibrous nodules in the subcutaneous tissue, resulting also doubtless from hypodermic injections.

Dr. Weber thought it must be exceedingly rare to see in Europeans typical keloids produced by hypodermic injections of morphine at the site of each injection, but he understood that they not rarely resulted amongst Chinese morphinists, and Dr. R. Bruce-Low had kindly given him a photograph of a Chinaman, a morphinist, whose upper extremities were covered with keloids, the result of hypodermic injections of morphine. The great tendency of the yellow and black races to develop keloids was remarkable.¹

Cf. A. G. Brenizer, "Keloid Formation in the Negro," *Ann. of Surg.*, 1915, lxi, pp. 83-87.

Congenital Sclerodermia and Sclerodactylia.

By E. A. COCKAYNE, M.D.

F. M., MALE, aged 1 year 3 months. First child of healthy parents. There was no history of a similar condition in the family. The mother was not ill during pregnancy. There had been no miscarriages. Patient was a premature child born at the eighth month; very small at birth. Even at birth the areas of affected skin were as extensive as at the present time, and the fingers could not be straightened. According to the mother's statement the limbs were not swollen. The hair on the scalp was abundant at first but began to fall out at the age of 4 months.

When first seen at the age of 7 months the child was undersized; weight, 9 lb. 4 oz. There was hydrocephalus, the head measuring $16\frac{1}{2}$ in. in circumference. The condition of the skin was almost identical with that seen at present. The Wassermann reaction was negative. The child had grown slowly and now weighed 10 lb. 12 oz. The head measurement was $18\frac{1}{2}$ in. In February a symmetrical increase in thickening on the outer aspect of both thighs took place. The thickening gradually decreased and no other change had been noticed. The scalp was shiny and almost hairless, and the eyebrows and eyelashes had almost disappeared. The skin of the face was thickened and shiny, but the most marked atrophy had occurred over the ears and *alæ nasi*. The skin of the abdomen and chest was much affected, that of the back and buttocks was normal. The skin of the groins, scrotum and penis was also unaltered. The skin of the upper arm had escaped, but from the elbow downwards there was marked sclerodermia. The hands showed typical sclerodactylia, the fingers being fixed in a position of flexion. Movement at the wrist-joints was restricted. In the legs there was much thickening of the skin over the outer aspect of each thigh; that on the inner aspect was less affected. In the lower part of the leg the whole of the skin was uniformly thickened. The toes were fixed in the "hammer-toe" position. The toe- and finger-nails were atrophic. The finger-nails were growing slowly, but for a long time no growth had been observed in the case of the toe-nails. There was limitation of movement at the ankle- and knee-joints, the latter being incapable of complete extension. There was sweating in the palms of the hands especially.

The child was treated with mercury for six months without effect and for the last month had been taking thyroid extract.

DISCUSSION.

Dr. F. PARKES WEBER said the case showed the typical distribution of generalized sclerodermia (with sclerodactylia) of adults; not that of sclerœdema or sclerema neonatorum.¹ The most serious disease in this child was the hydrocephalus. In regard to the generalized sclerodermia, improvement might doubtless occur, as it sometimes did during the hypertrophic stage of the acroteric type of sclerodermia ("acro-sclerodermia") in adults. When, however, the atrophic stage was reached (with contractures of fingers or toes) no improvement was at all likely to take place.

Dr. ADAMSON regarded it as true sclerodermia, and it was in his experience unique at so early an age. He agreed with Dr. Weber that the atrophic part would not recover, but the other might.

Dr. PERNET suggested that lumbar puncture might be of some use in the circumstances, considering the hydrocephalus.

The PRESIDENT thought that the undoubtedly congenital existence of the disease might be considered incompatible with the diagnosis of true sclerodermia; and that was his own view, despite the close resemblance of the child's condition to that disease. He pointed out that a certain number of cases of sclerema neonatorum recovered, as this baby was apparently doing.

Case of Hydroa Æstivalis.

By G. F. STEBBING, M.B.

THE patient, a girl, aged 14, developed, five years ago, a rash on the hands and face, and it had persisted ever since, with remarkable seasonal variations. Every winter the rash practically disappeared, and every spring it came back again. It was rendered worse by exposure to the sun; vesication and pustulation occurred, and in some places there had been large weeping sores, which took several days to clear up. One or two spots had appeared on the fronts of the legs after she had been "paddling," while staying at a convalescent home. The skin generally was not hypersensitive, and he could not produce factitious urticaria. The red blood cells were about 6 millions, and of the white cells 50 per cent. were small mononuclears.

¹ In sclerema and sclerœdema neonatorum the patient generally either died or recovered completely. Only in one or two cases of recovery had any patches of atrophic skin been left behind as a permanent result of the disease.

DISCUSSION.

Dr. F. PARKES WEBER said that when he saw the patient at the Lambeth Infirmary he had regarded the case as one of a "dermatitis æstivalis." The case was a very extreme one to be classed as one of "summer prurigo," and yet there were not the vesicles or blebs of "hydroa æstivalis" present. The question of diagnosis was interesting, as the present case had been at one time supposed to be one of scabies, and at another time pellagra had even been suggested as an alternative possibility. The appearance between the patient's fingers might certainly make one think of scabies, and such a mistaken diagnosis might be further favoured by the patient's complaint of itching when warm in bed at night-time.

Dr. ADAMSON said this was a characteristic case of the common disease known as summer eruption, or Hutchinson's summer prurigo. He had endeavoured to show in an article published some years ago in the *British Journal of Dermatology* that there was no sharp line between this affection and hydroa æstivalis.

The PRESIDENT said he considered the case a fairly typical one of the milder type of hydroa æstivalis. His impression was that the disease was commoner in boys than in girls; but his experience was based on the observation of golf caddies, who are much more exposed than most girls to its exciting cause.

Dr. PERNET said the ozænic odour from the patient's nose suggested a general toxic condition, which might have made the rash more virulent than otherwise would be the case.

Dr. STEBBING replied that the patient came under treatment on account of the condition of her nasopharynx; she was suffering from chronic ethmoiditis.

Case for Diagnosis ; so-called Acne Agminata of Crocker.

By DAVID WALSH, M.D.

THE patient, a man, aged 25, had a papular rash in the right supra-orbital region, which presented a sheet of confluent pale red papules, with a few satellites, and had existed for two years. It was painless, though there were sometimes a few subjective symptoms. The condition had progressed steadily, in spite of all treatment. Two Wassermann reactions were negative, and both autogenous and stock vaccines, also X-rays, had been used. He improved a little, and latterly there had

been some small atrophic scars. A biopsy showed hyperplasia of the sebaceous glands, with other changes that could be seen in the microscopic sections submitted. He invited opinions as to diagnosis and treatment. Anti-syphilitic remedies yielded more improvement than anything else, though he had used many kinds of local and general treatment.

DISCUSSION.

Dr. MACLEOD said that he had examined the sections from the case and had noted in them a definite increase of gland tissue and, in addition, small clusters of cells irregularly distributed in the corium. With the high power these clusters were found to be largely made up of plasma cells, with here and there cells with two or three nuclei but no definite giant cells. The microscopical appearances reminded him of those from a case which he had seen at Charing Cross Hospital under Dr. Galloway, except that in that case there were a number of giant cell systems. The clinical appearances of clustered papules, which disappeared leaving scars, also recalled that case. The speaker considered that the affection belonged to the tuberculide group and was closely related to the cases which had been described by Dr. Crocker under the heading of "*acne agminata*."

Dr. GRAY said that the sections looked much like those of *acne agminata*, a case of which he showed not long ago. The behaviour of the two cases was also similar. In his own case there was some overgrowth of sebaceous gland tissue, and there were giant cells, but he had not seen the latter in the sections now exhibited.

The PRESIDENT said that Dr. Walsh had courteously sent him before the meeting the sections now exhibited. He verified the existence of hypertrophy of the sebaceous glands but had been puzzled by the associated collections of cells of inflammatory type. He now remembered distinctly the case brought forward some years ago by Dr. Galloway and Dr. MacLeod, and the clinical features of atrophy and pitting present in it. He did not doubt that the case under discussion belonged to the same category as that referred to by Dr. MacLeod. He thought it likely that many cases formerly described as "*agminate adenoma sebaceum*" were not of that nature, but identical with Dr. Walsh's most interesting case.

Case of Lichen Planus Atrophicus, Sclerosus et Morphœicus.

By J. H. STOWERS, M.D.

THE patient, a married woman, aged 34, was stated to have enjoyed good health until the time of her marriage, nine years ago; but a few weeks later she suffered a nervous breakdown, with much depression, attributed to the sudden death of her father from heart disease. Her health gradually improved until about six months before the birth of her only child (which took place in May, 1908), when about a dozen "spots" were stated to have developed upon the back of the neck. These were said to have been red in colour, flat, smooth, and irritable.

During the year 1913 the patient was again subjected to much domestic anxiety and worry, and in January, 1914, fresh lesions developed symmetrically on the inner aspect of each thigh about 4 in. long by 1½ in. broad, the long diameter corresponding with the axis of the limbs, followed by others upon the hips, the anterior surfaces of the legs below the patellæ, and a few scattered patches on the abdomen immediately below the navel. The mucous membrane of the mouth was not involved.

The patient now presented numerous well-marked discrete and confluent patches of nacreous white skin characteristic of the atrophic form of lichen planus in the positions indicated, the sensation of the patches being much impaired. Special attention was drawn to the conspicuous and almost exact symmetry of the cutaneous lesions corresponding in a marked degree, both in extent and position, with those in another female patient, aged 45, previously exhibited, coloured drawings of which were shown.

Case of Adenoma Sebaceum.

By J. H. STOWERS, M.D.

THE patient was an unmarried female, aged 20, the third of four children and living with her parents. She was engaged in laundry work. Her general health had always been good, the only illness in her recollection being measles when a young child. Her mental condition was normal, and there was no history of nervous disorder in any

member of the family. The disease commenced to develop when the patient was aged about 8 years. The lesions, which were very characteristic both in colour and size, involved the whole of the face, except the upper forehead, and some parts of the sides of the neck, the vascular tumours being especially numerous and clustered round and above the alæ of the nose. The small, red, rounded tumours existed in close contiguity over the entire surface of each cheek with marked vascular ramifications and telangiectases.

A remarkable feature of the case was the presence of multiple small fibromata and sebaceous developments of various kinds upon the back and shoulders, which were stated to have appeared several years after the facial eruption had existed and which suggested a causal relationship.

DISCUSSION.

Dr. F. PARKES WEBER, discussing the last case, asked whether any members had, in other cases, ever noticed the association of the telangiectatic form of adenoma sebaceum on the face with the presence of small molluscous fibromata on the loins. That association constituted a feature of the present case.

The PRESIDENT said he was not familiar with associated lesions which he could identify as definite molluscous fibromata; various kinds of nævoid growths all over the trunk and limbs were generally met with in connexion with adenoma sebaceum.

Case of Lichen Planus Linearis.

By E. G. GRAHAM LITTLE, M.D.

THE patient was a gentleman in business in Wales, aged 51, sent to the exhibitor by Dr. Davies, of Tredegar, with the history of an acute development of the eruption at the latter part of February, patches of typical lichen planus appearing on the inside of the knees, the fronts of the wrists, the front of the legs, and on the prepuce and scrotum. At the same time appeared the linear streak of disease now present, stretching from the middle of the right buttock down the middle inner third of the posterior aspect of the right thigh, undergoing a short interruption of the line just above the popliteal space, then resumed in a thicker line just below this space, coursing over the bulge of the calf, from which it bent towards the inner third of the lower leg, ending on

the outer side of the ankle, and in an indeterminate line at the base of the little toe. The mucous membranes were free from disease. The patient had suffered very great bereavements and misfortunes, having within the last two years lost three brothers, a sister, his father, wife, and only child, and having, as a consequence of these events, become burdened with the support of four families.

The case constituted the most perfect example of linear lichen planus that had come under the notice of the exhibitor. No cause could be ascertained for the peculiar distribution. There had been no



Case of lichen planus linearis.

injury or pain in the site of chief incidence; the linear eruption was about $\frac{1}{2}$ in. in width, raised $\frac{1}{4}$ in. from the surrounding level, and of a deep bluish-red tint; itching was severe.

Case for Diagnosis. ? Pellagra. ? Addison's Disease.

By E. G. GRAHAM LITTLE, M.D.

THE patient, a boy, aged 12, had come to the Out-patient Department of the East London Hospital for Children the day before. He was born in Poplar, and had lived in the same street in that district since his birth. He had had measles and whooping-cough in earlier childhood, and, four years ago, had had the operation of circumcision at the same hospital for some difficulties of micturition. He had made a complete recovery, and up to last Christmas was in robust health, as a photograph taken some time before that date showed. About this time he began to have headache and vomiting, which persisted for some three weeks continuously, vomiting taking

place after each meal. The motions were irregular, usually in the sense of being too frequent. The father was a dock labourer in fairly comfortable circumstances. There were three older children and five younger, and all the others are healthy. Photographs of the three older children were submitted and showed well-built young men—one in the army, another a sailor—and a sister, aged 18, plump, and in every respect normal.

Present condition : Since his illness had begun the boy had eaten his food badly, and was now excessively emaciated. His height was 4 ft. 6 in., and his weight only 3 st. 1 lb. 12 oz. He was hardly able to get about and was very quickly tired. The skin was stretched over the bones of the face as on a dried skull, and there was involuntary twitching of the angles of the mouth—the risus sardonicus. No abdominal or visceral disease could be detected after examination by the exhibitor's colleague, Dr. Frew, who had kindly taken the boy into hospital for further investigation.

The condition of the skin : Over the greater part of the body there was a general desquamation and follicular keratosis, with short projecting spines, rather like an abortive lichen spinulosus, but with no inflammatory redness of the follicles. On the dorsum of the hands, on the neck, especially the nape, on the lower abdomen and genital area and upper part of the thighs there was deep walnut-hued pigmentation of the skin, which was smooth over the hands and neck, but especially spiny over the abdomen and thighs. There was no pigmentation of the mucous membranes.

DISCUSSION.

Dr. F. PARKES WEBER thought that Addison's disease was a more likely diagnosis in this case than was native English pellagra. For the acceptance of the former diagnosis it was unnecessary to find evidence of tubercle elsewhere in the body. Not all cases of Addison's disease were due to tuberculosis of the suprarenal glands. Some, for instance, might be due to an acute toxic atrophy of a large part of those organs. Though Addison's disease was very rare in children, when it did occur, it seemed generally to commence between the ages of 10 and 13. He had, unfortunately, not seen the follicular affection of the skin of the patient's trunk, but that was possibly a condition quite independent of the cutaneous pigmentation.

Dr. GRAHAM LITTLE, in reply, said his suggestion as to tuberculosis was to explain the diarrhoea. With regard to the diagnosis of Addison's disease, Dr. Frew, whose opinion was a very sound one, said he had never known a true case of that disease occurring so early in life.

Lichen Spinulosus and Folliculitis Decalvans.

By S. E. DORE, M.D.

THE patient, a woman, aged 43, was kindly sent to the exhibitor's department at Westminster Hospital by Dr. Kinnier Wilson. The case bore a rather close resemblance to one shown by Dr. Graham Little at the April meeting of the Section. In Dr. Little's case, which he called "folliculitis decalvans et atrophicans," there was loss of hair from the axillæ and pubes, as well as the scalp. The present patient had had characteristic folliculitis decalvans of the scalp for two years. There were several small circular and irregularly shaped atrophic patches in the occipital and frontal regions, and several large ones in other parts of the scalp. The patches were smooth, shiny, and slightly depressed, encroaching on the healthy hair by means of convex processes, and there was no sign of perifollicular inflammation. For nine weeks she had had a follicular eruption indistinguishable from lichen spinulosus on the abdomen, back, chest, thighs, neck and ears. The eruption consisted chiefly of minute, scattered, skin-coloured, acuminate, or spiny non-inflammatory papules, but a few were larger and reddened, or excoriated. The patient had suffered from thread-worms since childhood, and attributed the thread-like lesions to the worms "coming out."

DISCUSSION.

Dr. GRAHAM LITTLE said he thought the difference between his case and the present one lay in the fact that the axillæ in the present patient were normal. The most curious feature in his own case was that the hair in both axillæ and pubes was destroyed. His patient also had lichen spinulosus, but it was a more definitely spiny condition than was the present case. In this patient, taking into consideration the physique, he thought the spiny eruption was a coincident lichen scrofulosorum. He hoped Dr. Dore would have the tuberculin test made.

Dr. ADAMSON said that the scalp condition was folliculitis decalvans, and that all one could say about the eruption on the trunk was, that it was folliculitis. It was interesting to compare this case with that shown by Dr. Graham Little at the last meeting, and he thought it possible that in folliculitis decalvans folliculitis would be more often found on the body if looked for.

Dr. MACLEOD agreed with the diagnosis of folliculitis decalvans.

Case of Lichen Planus (Circinate and Atrophic).

By ALFRED EDDOWES, M.D.

THE patient, a female, aged 30, had been suffering from the disease for a year. Two or three months ago the rings were not very distinct, but lately the diagnosis had become easy because fresh lesions had appeared which were obviously lichen planus. She complained of intense irritation. The exhibitor would be glad of any suggestion for treatment likely to accelerate recovery. The lesion that first appeared much resembled the papular squamous circinate syphilide. Wassermann's reaction was negative, and there was no evidence of syphilis. The irritation might have been aggravated by the fact of the lesions on the feet being liable to friction, and to their situation among varicose veins.

The PRESIDENT suggested the use of X-rays to allay the irritation.

Case of Pityriasis Rubra Pilaris.

By J. H. SEQUEIRA, M.D.

THE patient, a married woman, aged 21, had been under Dr. Sequeira's care in 1910 suffering from pityriasis rubra pilaris. She got quite well and remained so until the end of April, 1915. She was admitted to the London Hospital on June 12, 1915, with a widely spread eruption, mainly of the diffuse type (erythrodermia). The scalp was scaly, and the face, neck, shoulders, abdomen and upper extremities were of a brick-red colour, the surface covered with fine adherent scales. On the upper part of the back the eruption had similar characters. On the breasts and on the lower part of the back and thighs the lesions were discrete, closely set pink papules, with caps of fine adherent scales. The legs below the knees and the feet were free. The nails were unaffected. There was no evidence of visceral disease.

Dermatological Section.

July 15, 1915.

Dr. J. J. PRINGLE, President of the Section, in the Chair.

A Persistent Gyrate Eruption (*Erythema Gydatum Perstans*).

By J. J. PRINGLE, M.B.

THE PRESIDENT brought forward a man of Scottish birth, aged 40, occupied as a shampooer in a Turkish bath, who presented a persistent circinate and gyrate eruption, as to the nature of which he entertained some doubt. The condition was said to have first appeared in the beginning of June as a patch, "the size and the shape of a pear," over the right scapular region; a few days later other similar patches developed, affecting in consecutive order the back, the front of the chest, the abdomen and inner aspects of the thighs, all of these regions being involved when the patient came under observation on June 22. Since that date the eruption had also appeared on the calves of the legs. The lesions, which were pretty accurately symmetrical, consisted of large circles, and gyrate figures produced by their intersection. Their margins were vivid pink in colour, and were faintly infiltrated and slightly raised above the general skin level, their elevation being more perceptible to touch than to inspection. Some of the elementary circles measured $2\frac{1}{2}$ to 3 in. in diameter. The slightly elevated margins were continuous—not papulated—and were not scaly or "wrinkled"; nor did the skin in the centre of the patches show any abnormality of the epidermis, or any greasiness or pigmentary change. The eruption appeared to begin as a circinate one, no centrifugal extension from any primary eruptive element having been noticed, either by the exhibitor or by the patient; and when the circular lesions were once present they had not been observed to extend at the periphery. They varied, however, considerably in colour from day to day, and became distinctly paler

after the patient remained stripped for some time. There was no itching. There was no history of syphilis and the Wassermann reaction was negative. Ordinary and differential blood counts revealed no abnormality. The urine and internal organs were normal. The patient expressed himself as being in "perfect" health. No fungus or undue number of bottle bacilli were present in scrapings. Mr. Beddoes had pointed out that the patient had severe pyorrhoea alveolaris. The observation was important and suggestive of a definite toxic cause for the eruption. But pyorrhoea alveolaris was an almost universal disease amongst hospital out-patients, and the eruption under discussion was a very rare one.

Treatment by weak sulphur-resorcin-salicylic paste had exerted no influence on eruption, but had set up a slight degree of diffuse dermatitis, and had not prevented the development of the condition in other parts (e.g., the calves). No internal treatment had been adopted.

The exhibitor had considered the possibilities of the eruption being a circinate pityriasis rosea, a ringed seborrhoeic dermatitis, an annular lichen planus or psoriasis, or a tinea circinata, but he had rejected all of these diagnoses for reasons which might be gathered from his description of its objective characters. His diagnosis—admittedly one "of embarrassment"—was that of an *erythema gyratum perstans*, although it differed in many material respects from the cases described by Dr. Colcott Fox under that name in 1901¹ (previously demonstrated to the Seventh International Medical Congress in 1881, although not recorded in its *Transactions*), and by Dr. Grover W. Wende,² of Buffalo, U.S.A., in 1906.

DISCUSSION.

Dr. ADAMSON thought the diagnosis rested between Dr. Colcott Fox's persistent circinate erythema and pityriasis rosea circinata. He could not make up his mind to which of those it belonged.

Dr. GRAHAM LITTLE did not think the case could be included in the category of Dr. Colcott Fox's gyrate erythema, inasmuch as Dr. Fox had suggested that diagnosis for a case which Dr. Little had shown at this Section in which there was very distinct vesication, and this feature was entirely absent here. Dr. Little was quite convinced that it was a case of pityriasis rosea of the type named by Darier "pityriasis rosea gigantea," of which

¹ *Internat. Atlas of Rare Skin Dis.*, 1901.

² *Journ. Cutan. Dis.*, 1906, xxiv, p. 241, with bibliography.

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Dr. Pringle's case of persistent gyrate eruption (erythema gyratum perstans).

a photograph had been kindly lent to him by Professor Nékám, for use with his paper on pityriasis rosea,¹ with which it was reproduced. He had never seen an instance of this type, which was certainly extremely rare, until a few weeks ago, when a very characteristic case had appeared at St. Mary's Hospital, which bore a strong resemblance to the present case. The patient was a woman who gave a most convincing history of the pioneer patch, and she developed circinate patches the size of the palm, on the hand, which were devoid of fungus, and cleared up in the usual way.

Mr. McDONAGH thought the case was an example of the gyrate form of pityriasis rosea.

Dr. MACLEOD did not think it was pityriasis rosea; he believed it to be a toxic erythema. The scaly condition of the lesions on the arm seemed to be due to treatment with resorcin.

Dr. STOWERS, while admitting the exceptional character of the case, said that its prevailing features so far resembled pityriasis rosea that, uninfluenced, he would have regarded it as an unusual example of that disease.

Dr. PRINGLE said, in reply, that his case was not in complete accord with those described under the same name by Dr. Colcott Fox, which, as Dr. Graham Little had said, vesicated. He could not accept the diagnosis of circinate pityriasis rosea advanced by Mr. McDonagh and Dr. Stowers, as the primary lesions—which he had studied with special care—presented none of the essential characteristics so typical of that disease. The localization of the first lesions and their gradual extension from above downwards had suggested that diagnosis *in limine*, but he had abandoned it. Unfortunately, he did not know the disease described by Darier as “pityriasis rosea gigantea.” He placed considerable importance on the fact, which he had observed for himself, that rings varied greatly in intensity of colour with changes of temperature; and this seemed as incompatible with a pityriasis rosea as it was suggestive of a member of the erythema exudativum group.

(*Post scriptum*, July 31, 1915.—Since the meeting Dr. Adamson has drawn my attention to two cases of circinate erythematous eruption shown by him to the Dermatological Society of London in 1906² and 1907.³ Both presented considerable resemblances to the case under discussion. Dr. Graham Little has also drawn my attention to his remarks on pityriasis rosea gigantea in his address to the Section in February, 1914.⁴ He has most kindly sent me Professor Nékám's

¹ *Proceedings*, 1914, vii, p. 133.

² *Brit. Journ. Derm.*, 1906, xviii, p. 403.

³ *Ibid.*, xix, 1907, p. 199.

⁴ *Proc. Roy. Soc. Med.*, 1914, vii, p. 133.

original photograph of a case of that very rare disease under his care; but a glance at it, especially at the characteristics of the central portions of the lesions, will show that it differs widely from the case I exhibited, which, moreover, cleared up suddenly and completely ten days after its exhibition in a manner quite unlike any form of pityriasis rosea.—J. J. P.)

Pigmentation around the Mouth in a Boy, aged 14.

By E. G. GRAHAM LITTLE, M.D.

DR. LITTLE said he brought the patient in the hope of receiving help in regard to both diagnosis and treatment. More than a year ago the lad, while at a public school, had an inflammatory affection about the mouth, which was thought to be tinea, and for some weeks he was painted with tincture of iodine. A good deal of chronic inflammation appeared to have preceded the pigmentation. He was a native of Trinidad, but he had been in England for some time for purposes of education. The mother was half French and half English, and was, like the son, a brunette. There was no accentuation of pigmentation in other parts of the body or of the mucosa. The iodine was stopped at least eight months ago, and no other irritant had been applied. During the last four or five months he had been having peroxide of hydrogen lotion and had got somewhat better. At the present time there was a coffee-coloured staining of the skin of both lips, very much as if a brush of pigment half an inch broad had been swept rather clumsily round the orifice of the mouth. It was for this disfigurement that help was chiefly sought.

DISCUSSION.

Dr. MACLEOD said he believed that the original trouble was a streptococcic perlèche and he considered that the pigmentation might quite well be accounted for by the irritation of the inflammatory condition and the treatment to which it had been subjected.

Dr. F. PARKES WEBER thought that the peculiar shaped area of pigmentation about the mouth must be the result of a chronic irritation. In people of very dark complexion like the patient, pigmentary changes were, of course, much more easily produced than in ordinary people.

Multiple Inclusion Cysts of the Epidermis.

By E. G. GRAHAM LITTLE, M.D.

THE patient, Mrs. A., a widow, aged 66, with her home in Shipley, Yorkshire, where she had been resident for many years, and had carried on a business. She was a small, thin, but active woman, with two grown children now aged 33 and 35 respectively. There was no history of family disease, except that a brother of hers had died of consumption, aged 23, many years ago. Her husband had died of cancer of the stomach ten years before the beginning of her skin affection. She was sent to the exhibitor by Dr. Thornton, of Shipley, on June 24, and had not been seen again by Dr. Thornton until she came to the meeting of the Section on July 15. Her history was as follows:—

Some three years ago her hair had begun to give her some trouble; it had long been white, but about this time it seemed to suffer from an arrest of growth so that it remained short over the greater part of the scalp, the individual hairs not exceeding $\frac{1}{4}$ in. in length, but nowhere was there any deficiency of hair in the sense of causing baldness, though she now wears a wig. About two and a half years ago she suffered for some time from diarrhoea and she wasted a good deal. The tumours began to appear about this date, at first on the anterior border of the axillæ and on the neck. They had become more abundant of late, but ever since their first development they seemed to have become progressively more numerous. They had always been themselves moderately irritating, but in addition she appeared to have had from the beginning frequent attacks of a very itchy urticaria. She said she had grown much thinner in the last two months, but there was no ascertainable general illness to account for this. The thyroid was notably enlarged, and the increase had been observed for about eighteen months. There was no tangible enlargement of lymphatic glands. There was considerable pigmentation of the skin in the areas where the tumours were most numerous, and where itching was severe, and this symptom, and the fact that she had taken arsenic for prolonged periods, might account for the deepened colour. There were no uterine discharges. The teeth were defective and decayed, and the mouth in a somewhat septic state. The mucous membrane was not pigmented.

Character and distribution of the tumours: These were evidently in the substance of the skin and freely movable with it. The individual lesions were very uniform in size and appearance, and might be described as "pearly" swellings, with something of the aspect and size of boiled sago grains. In several instances a patent orifice was visible to the naked eye at the summit of the swelling, and from this opening cheesy matter could be squeezed, or from the larger and more patulous tumours a hard horny brown mass could be extruded. One of the larger tumours, about $\frac{1}{4}$ in. in diameter, which represented the limit of enlargement, was incised and a thick white cheesy matter was voided, which when dry formed a brown horny mass, like the plugs extracted by the patient, of which she was able to supply a small collection which she had thus squeezed out for herself. The tumours were symmetrically distributed and were very closely grouped together, so that whole sheets of skin seemed involved, and presented a coarsely "hobnailed" aspect, and the skin itself was notably thickened in these parts, notwithstanding that the distribution was in positions where the skin was normally thin. In a very few instances suppuration appeared to have taken place in individual tumours, leaving bluish stains, such as might result from boils. The principal seats of distribution were the axillæ where they first appeared, and where the anterior borders and the sides of the chest below the armpit were crowded with small swellings; the flexor surfaces of both upper arms from the axillæ to the bend of the elbow were studded with small growths, in most cases the colour of the surrounding skin, in others of a pale cream tint, in a few instances of a bluish hue. The skin of the abdominal wall in the hypogastrium and pubic region was similarly studded with very small pearly tumours, in the latter position the skin was deeply pigmented, as it also was on the upper and inner parts of the thighs where there were many small swellings, and there were sporadic small elevations in the popliteal spaces on the fronts of the legs, and on the neck, in both of which positions there was much pigmentation; there were a few isolated tumours on the forehead at the junction of the skin and scalp. The back of the trunk was entirely free, and in fact the extensor surfaces were generally exempt, the only exception being the forearms, where on the outer and upper part from the elbow to the junction of the upper and middle third of the forearms there was a particularly thickly distributed eruption of small tumours. The total number of tumours thus present on the whole body aggregated several hundreds.

The skin was everywhere dry and markedly non-greasy. The hands showed several "Heberden's nodes." The hair in the axillæ and pubes was not arrested in development as it was in the scalp, and was in no way deficient. The nails were normal.

Microscopical examination: A portion of the skin was excised from the flexor surface of the right upper arm, fixed in formalin



FIG. 1.

Multiple inclusion cysts of the epidermis.

and cut in paraffin. It would give an idea of the size and closeness of setting of the tumours to mention that the section in the paraffin block measured exactly 10 mm. in length, and in this strip of skin there were three cysts plainly visible to the naked eye, each being from 1 to 3 mm. in diameter, of a light buff colour, and showing an onion-like stratification, the whole tumour being deeply situated for the most part, and separated from the horizontal line of the surface by at least a millimetre. Under a low power, the section

was seen to contain three cysts, of which the central one communicated directly with the surface by an aperture which was partially blocked with horny cells and granular débris. The epithelial lining of the epidermis was continued directly into the cyst cavity, which was almost entirely filled with a mass of stratified material staining exactly like the stratum corneum. There was no flattening of the papillæ over the cysts. There were no hair-follicles or sebaceous glands seen in any part of the sections examined. The sweat glands appeared normal, but thrust downwards by the bulk of the cyst, and were found for the most part bunched together outside and at the deeper margin of the cyst. In several places, and especially in the neighbourhood of the deepest end of the cyst, there was considerable inflammation apparently round these glands which were embedded in a fibrous and cellular envelope. But the glands were nowhere dilated, and this apparently inflammatory reaction was seen in collections of glands remote from the cyst wall.

With higher magnifications the following details could be made out: The stratum corneum was thickened throughout the section; the stratum granulosum was normal; the rete was in no way altered or thinned, the prickles well marked. At the junction of the epidermis with the orifice of the patent cyst the epithelium suddenly altered, to lose its prickles, to become less than half as thick, to lose its inter-papillary prolongations, so that the wall had for its outer boundary a continuous outline uninterrupted by projections. In no part of the cyst wall was there any default of the epithelial coat, but it was of varying thickness, for at its upper margin nearer the line of the epidermis it was in parts very nearly as thick as the normal epidermis covering it; in the greater portion of the wall the cells were several layers thick, it was true, but still less than half as thick as the normal epidermis. Nowhere in the envelope were there any glandular vestiges, or hair tissue. Nearly all round the cyst between the corium and its containing wall there was a definite lacuna, possibly artificial, as the contents of the cyst were very hard. At several places in the line of the outer cyst wall the corium was retained in contact with it by some organized fibrous tissue, with a very cellular corium surrounding it. The inner wall of the cyst was lined throughout with a thin layer of stratum corneum, separated by another lacuna from the great mass of horny tissue which filled the cyst cavity. This mass was for the most part homogeneous horn-cell tissue, arranged in concentric strata like the layers of an onion. In the case of the patulous cyst

this mass was continuous with the mass partially occluding the aperture, and the whole mass both at the orifice and within the cavity was permeated with very numerous cocci. These were not found in the smaller and non-patulous cysts. Probably, therefore, these were really closed cavities, not communicating with the surface.

The epithelial cells constituting the cyst wall showed elongated nuclei in the inner layers bounding the cavity, and kerato-hyaline granules were present in them. The outer layers showed more rounded nuclei, the outermost differing but little from normal epidermal cells, except that prickles were nowhere visible. The contents of one of

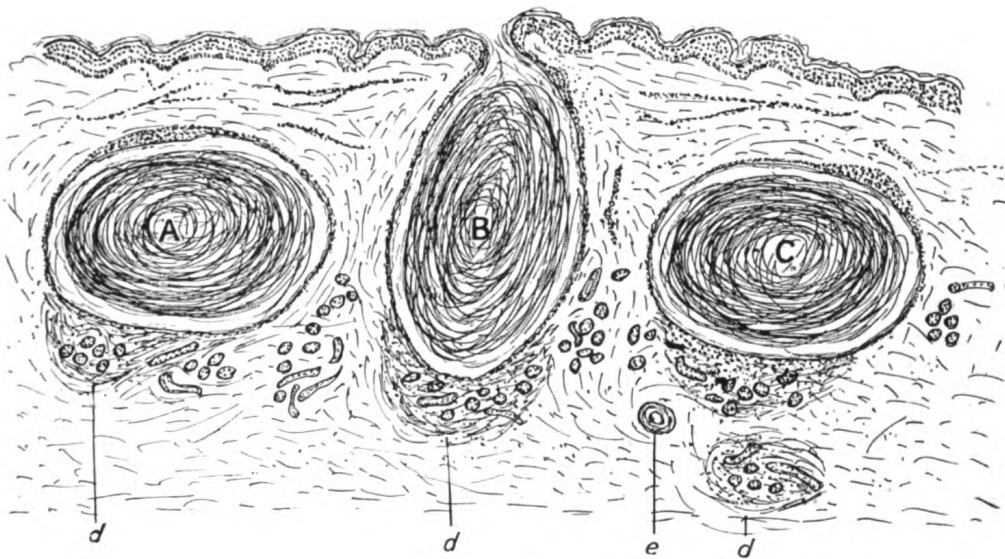


FIG. 2.

A, C, epithelial cysts, not patulous; B, epithelial cyst opening directly on epidermal surface; *d*, collections of sweat glands, surrounded by much fibrous and cellular tissue; *e*, section of blood-vessel.

the cysts which were evacuated by incision were examined. The bulk of the extruded matter was insoluble in chloroform, and when teased out in potash was seen to be chiefly composed of epithelial cells. A few cholesterin crystals were seen in the débris. Some fat was extracted by the immersion in chloroform, and stained characteristically with osmic acid. The cheesy matter, white when freshly expressed, soon dried, to form a hard brown horny plug.

DISCUSSION.

The PRESIDENT was not conversant with the recent literature on the subject of what Dr. Graham Little called "implantation tumours," but the case and the section exhibited reminded him of a very similar condition described by himself in 1899 under the name of *Steatocystoma multiplex*.¹ The paper referred to contained a note of an apparently identical case described by Bosellini, of Bologna,² and of a somewhat similar condition described by Dubreuilh, of Bordeaux.³ Probably the recent views on the pathology of these apparently identical or allied conditions were much nearer the truth than the older conceptions.

Mr. WILLMOTT EVANS did not venture to give an exact opinion as to the nature of these tumours, but thought it a pity to apply the name "implantation cysts" to them. Implantation cysts had a definite and well-recognized nature and origin. They were due to trauma and to masses of epithelial cells being carried into the derma. In the majority of such cases the history was quite clear, as was also the nature of the lesion. He did not believe Dr. Little suggested that in this case the cysts were due to the carrying in of epithelium from the surface; therefore it seemed a pity to use the term.

Dr. ADAMSON thought the tumours might be appropriately called "inclusion cysts," for the sections under the microscope showed them to be cysts formed by recent infoldings of the epidermis and not embryonic hair-follicles, sebaceous glands or sweat ducts or glands, as in tricho-epithelioma, sebaceous adenoma, and syringoma. In parts of the section a commencing infolding of the epidermis could be clearly seen. Similar cystic formations simulating sebaceous gland tumours were seen in some cases of linear nævus (Haldin Davis, case with drawing of section),⁴ but Dr. Adamson had not seen any case quite like that now exhibited by Dr. Little.

Dr. MACLEOD said he had examined the section and agreed with Dr. Little's view as to the histology.

Mr. McDONAGH said he thought it was a case analogous to linear nævus, in which some of the cysts had developed in the openings of the sweat ducts and the pilo-sebaceous follicles. In his opinion, implantation cysts and inclusion cysts were mechanically formed by inclusions of the epidermis, and were not uncommonly met with after burns and in epidermolysis bullosa.

Dr. GRAHAM LITTLE, in reply, said that the President was of opinion that the case showed some clinical resemblance to a very remarkable disease in

¹ *Brit. Journ. Derm.*, 1899, xi, p. 381.

² *Arch. f. Derm. u. Syph.*, 1898, liv, p. 81.

³ *Arch. Clin. de Bordeaux*, 1896, p. 191; and *Trans. Third Internat. Congress of Derm.*, 1898, p. 818.

⁴ *Proceedings*, 1910, iii, p. 105.

a male patient described by him in which the microscopical appearances of the cysts there present led to their being identified as sebaceous in origin. This was particularly interesting in connexion with the present case, in which the writer was inclined from the clinical symptoms alone, and especially from incision of a tumour appearing to result in the extrusion of what was extremely like sebaceous secretion to the naked eye, to regard the tumours at first as sebaceous cysts, although the distribution was in parts where sebaceous glands were not particularly in evidence, and their absence in typically sebaceous areas rendered this identification unlikely. Perusal of the President's paper had convinced him that the distribution and general clinical character of the tumours in Dr. Pringle's case were remarkably like these factors in the present case. But differentiation was established by the demonstration in Dr. Pringle's case of enlarged sebaceous glands in the vicinity of the cysts, by the presence of fragments of sebaceous gland tissue adhering to the cysts, and by the complete absence of horn cells within the cysts. For it was expressly stated that the epithelial wall of the cyst "never resembled in appearance the upper epithelium of the epidermis, nor showed any tendency to become transformed into horny epithelium, and that the contents of the cysts were dissolved out by ether." Dr. Pringle gave a reference to a case similar to his own described by Bosellini. Dr. Little had not had access to the original description, but judging from Dr. Pringle's description this could also be differentiated completely from Dr. Little's case. Similarly, there could be no question of the derivation of the cysts in the exhibitor's case from sweat glands or from hair-follicles, and the demonstrable continuity of the cyst wall with the surface epithelium of the epidermis, and the filling of the cavity of the cyst with stratified horn cells, left no option save to regard them as inclusion cysts, admirably described by Darier in his article on tumours in the "*Pratique dermatologique*" under the title "*kystes traumatiques epidermiques*." These were the same type as the "implantation cysts" of surgical text-books, and might be supposed to be produced by the transfer through injury of a fragment of epidermal tissue into the corium; there the fragment grew, usually forming a closed cyst, but continuity of the interior of such cysts with the surface epidermis had been demonstrated previously. The chief difficulty in accepting this explanation in the present case lay in the complete absence of any history of injury, the enormous number of cysts present, and the position of these. It had been suggested that this case might be explained on the supposition that these tumours were really of congenital origin, that was, dermoid cysts, the late eruption of which might be determined by some unexplained stimulus. But the history, to the effect that all the tumours made their appearance for the first time after the patient had passed her sixty-third year, seemed to negative such a hypothesis, which was also quite out of accordance with the multiplicity and distribution of the growths. Implantation cysts were rare in any position, were almost always either single or at the most very few, and with one or two exceptions had been confined exclusively to the hands and the iris; a generalized eruption

of such cysts had not been hitherto recorded, so far as he knew. But instances had occurred in which injury had not apparently preceded their appearance, and as Darier stated that as long an interval as twenty-four years might separate the trauma from the development of the tumour resulting from it, it was obvious that the injury might be forgotten in that long period. Rollet¹ had cited a most interesting example of such a cyst appearing fourteen years after injury, in which the growth recurred twice after it had been apparently completely excised. Le Fort,² whose work on this subject was the fullest that the exhibitor had been able to consult, remarked on the extreme rarity of inclusion cysts in parts other than the iris and the hand, and stated that the connexion with injury was far from established, so that he preferred for them the title of "acquired dermoid cysts." He offered no example in his own experience or from the literature of *multiple* cysts of this nature. He explained the absence of glands and hair-follicles in the cyst wall by the assumption that if only the upper zone of the epidermis was displaced, which on experimental and clinical data he showed was much the commonest event, the cyst-wall would contain only epidermal cells. If a thicker section of the skin with its appendages was buried in the deeper tissues, papillæ, glands, and even hairs might be present in the cyst-wall, and he mentioned a personal observation in which a single hair was thus demonstrated within the cyst. He thus made out two classes of this type of cyst, depending on whether the invaginated fragment contained or did not contain the skin appendages in addition to the outer epidermal zone. For the production of the purely epidermal variety very much less force, very much less obvious injury, might suffice; and as in the present case the cysts were throughout of the purely epidermal type, it was possible that an explanation of their production might be found in the fact that the patient had been accustomed to scratch herself to the point of mutilation, having apparently suffered very frequently from severe urticaria.

Atrophic Sclerodermia and Sclerodactylia, with Nodules of Calcification about the Left Shoulder.

By G. F. STEBBING, M.B.

THE patient was a woman, aged 70, with general sclerodermia. It was the first case of which he could find any record of such extensive calcification as this patient showed. A skiagram showed there was a continuous chain, starting at the lower part of the axilla and extending in a horseshoe shape round the upper end of the humerus, becoming

¹ Rollet, "De l'apparition tardive des kystes dermoïdes," *Gaz. hebdomadaire de Médecine et de Chirurgie*, 1889, 2 sér., xxvi.

² Le Fort, "Kystes dermoïdes traumatiques," *Revue de Chirurgie*, 1894, xiv, pp. 1013-36.



Skiagram of the right shoulder region in a case of atrophic scleroderma, showing large calcareous masses in the subcutaneous tissues.

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superficial over the deltoid and reaching down as far as the insertion of that muscle. The mass was at first regarded as a calcification of the capsule of the shoulder-joint, but the skiagram showed that this was not the case. The contents of the nodules had not been examined.

Skiagrams of the hands showed marked atrophy of the phalanges and pathological dislocations of the middle phalanx of each little finger.

Dr. F. PARKES WEBER said that, considering how long the disease had been going on, the nutrition of the patient's feet was still remarkably good, and good pulsation could be felt in the dorsalis pedis artery in both feet. There had been many cases of scleroderma recorded associated with calcification in the skin and subcutaneous tissues, especially in the fingers, but he believed that this was the only case in which that particular part—namely, the region of the left shoulder—had been affected by calcification. In the present case that was apparently the only part affected by calcification, but its amount was very great.

Peculiar Zoniform Nævus of the Right Upper Extremity.

By G. F. STEBBING, M.B.

B. L. M. W., AGED 32, had a number of discrete hard nodules, slightly pigmented, on the right forearm and arm, more marked on the extensor than on the flexor surface. The nodules had been present since birth, and they did not appear to follow closely the distribution of any cutaneous nerve. They had never caused any trouble. It was hoped that a section of one of them would be shown later.

DISCUSSION.

The PRESIDENT expressed some objection to the term "zoniform" as applied to the case, which was merely unilateral. The tumours closely resembled leiomyomata, and the same idea had occurred to Mr. McDonagh. Perhaps Dr. Stebbing would furnish microscopical evidence of their nature before the publication of the *Proceedings*.

Dr. F. PARKES WEBER said he believed that, when Dr. Stebbing had kindly shown him the case at the Lambeth Infirmary, he had suggested that a biopsy examination might show the little tumours to consist of unstriped muscle tissue—i.e., to be leiomyomata. Surely, however, in this case they constituted a kind of "nævus unius lateris," or systematized nævus, even if not a true zoniform nævus.

Mr. McDONAGH agreed that it was impossible to make a diagnosis without a biopsy; but, tentatively, he would regard the case as one of leiomyoma cutis.

Dr. GRAHAM LITTLE said that from the colour of the lesions there might be a remote possibility that it was an example of urticaria pigmentosa, which he had seen in very restricted distributions. But obviously no diagnosis could be established until the histology had been investigated.

Note.—No biopsy (as suggested by Dr. Pringle) has yet been done on this patient, but it is hoped that one will be done shortly, and the nature of the tumours will be reported on a subsequent occasion.

Case of Lupus Erythematosus.

By H. W. BARBER, M.D.

THE patient, a middle-aged woman, was well until her twenty-fourth year when she developed myxoedema, and was treated for it with thyroid for eight years. She improved on it, and remained well as long as she took the drug. In August, 1899, while at St. Anne's-on-Sea, her face became very irritated and sore. It was treated with ointment and cleared up, with the exception of two patches, one on each cheek. These gradually spread until, in 1902, she was treated by a German doctor by means of Unna's plaster. On this treatment she made a rapid improvement, and the eruption cleared, leaving two slight scars. Four years later it returned, but on the right side only. In 1906 she was married, and in the beginning of 1907, when pregnant, she went to the Norwich Hospital, where her face was treated with X-rays, but it did not get better. The patch continued to spread, and in July, 1913, it was cauterized with trichloroacetic acid. The hair then began to fall out. Last Christmas spots appeared on her hands, and were treated at Norwich by means of X-rays; but, according to the patient's story, her hands had been worse since she had the X-rays. During that time, until a week before Dr. Barber saw her—a month ago—she was taking large doses of thyroid. When he saw her in the out-patient department, he thought it was lupus erythematosus, and he believed the X-ray treatment had made the condition much worse. Dr. Williams had told him he had a case like it, which cleared up under sour milk treatment; and he would be glad to hear whether any other member had had similar experience with this type of case. The von Pirquet reaction was negative.

He was much indebted to Sir Cooper Perry for giving him permission to show the case.

DISCUSSION.

Dr. STOWERS considered that the case was certainly lupus erythematosus. In his opinion X-ray treatment was inappropriate and calculated to aggravate the disease. He saw in consultation about three years ago a somewhat similar case, which had assumed an acute form under X-ray treatment, and rapidly extending, ended fatally. He regarded the present case with considerable apprehension and recommended absolute rest in bed with a sedative local treatment. He asked whether the urine had been recently examined and with what result.

Dr. PERNET said he had seen cases of lupus erythematosus aggravated by the application of X-rays. He did not like the look of this case, which was certainly one of lupus erythematosus. He had also intended to ask whether there was albumin in the urine. He would advise sedative local treatment, and quinine internally; the local treatment first.

Dr. SIBLEY said he had long since given up the use of X-rays for lupus erythematosus. Cases of this kind he always treated by painting them over about once a week with acetone and CO₂, very lightly, for a second or two, using calamine or other sedative lotion in the intervals. They all did very well under that. He did not limit it to cases which were localized. He had recently had in the hospital both a man and a woman with the whole face and ears and crown of the head practically covered, producing extensive alopecia, and some superficial excoriation. He painted one side one day, and the other side another day. Both left the hospital in a month with the condition practically quiescent.

Dr. DUDLEY CORBETT† thought that for small localized patches of lupus erythematosus the X-ray was sometimes good treatment; but his practice lately had been to treat those cases first by ionization with zinc, followed immediately after by a small dose of X-rays. It seemed to be the most successful treatment hitherto employed, and the results obtained were better than those following the use of either method separately. He had used the CO₂ paint, but on the whole did not think that it was as useful as the method he had just described.

The PRESIDENT said he agreed with the diagnosis of Dr. Barber, Dr. Stowers, and others. He believed the extreme acuteness of the case was due to the application of X-rays. He had seen a similar accident on more than one previous occasion. Nevertheless, he had seen cases of erythematosus lupus of the "fixed type," in which the lesions were very clearly demarcated, improve markedly under mild X-ray treatment, apart from ionization. He knew of Dr. Corbett's success by his combined method. He regarded the case as one of great gravity, and it seemed to him to call for very large doses of salicin, or quinine. He usually gave quinine the preference.

Dr. BARBER replied that the patient's urine was normal; the fæces had not been examined.

Note.—Shortly after being shown at the meeting the patient's condition became considerably worse. Her temperature rose and remained in the neighbourhood of 103° F. for several days; there were also several shivering attacks. At the same time the eruption spread considerably. Bacteriological examination of the fæces gave a pure growth of streptococci, and this on a medium which favoured rather the growth of the *Bacillus coli* group of organisms. Her urine showed a trace of albumin and indican. Further investigations of the fæces were being made.

Cases of Annular Lichen Planus in Two Sisters.

By H. C. SAMUEL.

Case I.—Patient, A. E. B., a married woman, aged 60, with five children, all in good health, came to the Prince of Wales's Hospital, Tottenham, last March, with ringed lichenoid eruptions on the limbs, diagnosed by the exhibitor as lichen planus annularis. Her skin trouble began at the age of 17, with a similar eruption; it lasted for about twelve months, and recurred less severely a short time afterwards. Ten years ago she had another attack lasting three months. The present attack at its commencement involved the whole of the arms and legs; it had now practically disappeared, leaving definite pigmentation. During her first attack she was under the care of Dr. Tilbury Fox, as an in-patient at University College Hospital for two months, and afterwards attended as an out-patient. The patient stated that she was exhibited by Dr. Fox at the Clinical Society of London, and that her case was described as lichen ruber.¹

Case II.—A. H., aged 42, sister of the first patient, had a ringed eruption on the limbs and trunk. The appearance of the lesions was identical with those present in her sister. This was her first attack; it commenced last November, but was now subsiding.

Both patients came to the Hospital independently of one another and on different days. Later they happened to come on the same day, and only recognized each other as the result of a conversation while waiting.

The principal points of interest consisted in the annular atrophic

¹ *Trans. Clin. Soc. Lond.*, 1872, v, p. 154.

type of the lesion; its probably unique co-existence in two sisters, and its identical distribution and characteristics in both patients.

Mr. Samuel asked for a confirmation of the diagnosis of lichen planus annularis, and said that the lesions present on the legs in the second patient suggested the possibility of parakeratosis variegata.

DISCUSSION.

The PRESIDENT said these cases were, to him, of extreme interest. He did not remember that Tilbury Fox had described circinate lichen planus, though doubtless he recognized it, because he saw the elder of these two patients. He was under the impression that circinate lichen planus was first described by Unna about the year 1885, and that he (the President) was one of the first to show examples of it before the Dermatological Society of London. Many members would not then accept his diagnosis because the lesions were circinate, and regarded his cases as syphilitic. His own diagnosis turned out to be accurate. He had no experience of the disease occurring simultaneously in two sisters, and could advance no views to account for it.

Dr. GRAHAM LITTLE said he had seen attacks of lichen planus occurring nearly simultaneously in two sisters, who had suddenly lost their father and were thereby plunged into comparative poverty, and the eruption was ascribable to shock and general stress. He drew attention to the frequency with which circinate types were occurring at the present time, when they were seeing a most unusual number of cases of lichen planus, a frequency of the disease probably to be explained by the period of anxiety in which they were living.

Dr. STOWERS said that he also remembered having seen two sisters who were the subjects of lichen planus simultaneously. One of these, the less acute, was treated with arsenic, no vesiculation having appeared; but the other developed a number of small vesicles, no arsenical preparation having been administered.

Mr. SAMUEL replied that he did not consider the fact that both sisters had lichen planus as a mere coincidence, because not only was the same disease present, but the type of the disease in both was identical—namely, the circinate atrophic variety—in itself much rarer than the ordinary papular lichen planus.

Case of (?) Angioma Serpiginosum in a Woman.

By E. G. GRAHAM LITTLE, M.D.

THE patient, a middle-aged woman, had a large family, and worked hard. Rather more than twelve months ago she had begun to note a pigmentation of the ankles and lower part of the feet, and

this pigmentation had spread in the last few months up the thighs, until at the present time there was a meshwork of a light brick-dust colour, occupying the skin of the legs, thighs, and lower abdomen. The pigment was apparently produced by a sort of natural tattooing with a fine granular pigment, probably blood pigment, and distributed in the path of the superficial plexus of vessels. There was no history, and there were no symptoms of varicosity, in which condition a granular pigmentation was not uncommon. The wide extent, the retiform distribution, and the rapidity of later spread were features of the case. The patient suffered also from some obscure pains in the limbs, and gave a history of an old facial paralysis, which had left a ptosis of the right eyelid.

Note.—The pains were described by Dr. Harris, who had kindly examined the patient since her exhibition at the meeting, as due to rheumatic conditions, and he reported that there was no obvious constitutional illness.

DISCUSSION.

Dr. CORBETT asked whether the pain which the patient suffered was not an unusual complication of this condition. It suggested to him some form of circulatory stasis.

The PRESIDENT said the two conditions might be interdependent on a common cause. He asked whether the blood had been examined, and if so, with what result. It was a point of importance, as the patient was obviously very ill and the skin condition was progressive.

Dr. F. PARKES WEBER asked whether pigmented cases of similar type had not been described under the name "Schamberg's disease." He did not refer to the bright-red cases of "infective angioma" or "angioma serpiginosum."

Dr. PERNET asked if there was any syphilitic element in the case, because some writers laid stress upon that. A girl he had shown at the Section, who was the subject of angioma serpiginosum, had appeared to improve on mercury, but he had not seen her lately.

Dr. GRAHAM LITTLE, in reply, said he did not pay much attention to the pain, as it did not seem to be more than was usual with hospital patients who led hard lives. He did not believe enough was known about Schamberg's disease to discuss it usefully. He remembered seeing, when he was Dr. Pringle's assistant, a boy with Schamberg's disease of the legs, and that was the only case in which he got a section for histological examination. The clinical features of the cases shown as Schamberg's disease were very much like those in this case.

Case of Dysidrosis and Dystrophy of Nails in a Patient with Graves's Disease.

By S. E. DORE, M.D.

THE patient, a young woman, aged 23, had suffered from Graves's disease for three years, with marked enlargement of the thyroid gland, tachycardia, and fine tremor, but no exophthalmos. During the same time she had also had intermittent attacks of typical cheiro-pompholyx and dystrophy of all the finger-nails, which were deeply pitted and slightly separated at the free extremities, some of them having been shed and grown again. Atrophy of the nails had been recorded in connexion with Graves's disease by Grainger Stewart and Gibson.¹ These changes, which were stated to have been present for one year only, might be independent of the general condition, or might be associated with the cheiro-pompholyx, but as far as he knew there were no changes in the nails associated with dysidrosis, although such changes might be expected to occur if the disease was, as some thought, a variety of eczema. The sweating associated with the other symptoms of Graves's disease might be a causal factor in the dysidrosis in the present case. She had had three attacks of this eruption of the skin during the seven months he had known her, and she had had many attacks before that, principally in the summer months. The feet were not affected.

DISCUSSION.

Dr. GRAHAM LITTLE said a friend of his, a physician to a London hospital, had suffered yearly for many years from dysidrosis, and as he was a man of very exceptional experience and of trained observation he had contributed some interesting personal points. In all his attacks he had shown, as well as the usual eruption on the hands and feet, very curious circinate erythematous lesions not unlike erythema iris on his body. He had formed the personal opinion that the eruption was associated with intestinal toxæmia, and had found that he had obtained greatest relief from a calomel purge.

Dr. F. PARKES WEBER said he did not think the condition of the finger-nails had any direct connexion with Graves's disease. As the patient said she had had the nail condition for a period of only one year, and had had the cutaneous trouble in the hands for about two years, the state of the nails was probably only a manifestation of the dystrophy of the skin of the hands.

¹ *Edin. Hosp. Reports*, 1893, i, p. 196.

Dr. PERNET said he believed nail changes had been observed in connexion with Graves's disease, but similar nail changes might be due to various causes.

The PRESIDENT said the nail changes must be regarded as tropho-neurotic, and any tropho-neurosis might apparently be associated with Graves's disease—e.g., alopecia areata. He believed that nail changes of a degenerative nature had been reported in association with Graves's disease.

Case of Sclerodermia.

By DUDLEY CORBETT, M.D.

THE patient was a married woman, aged 54. There was nothing of importance in the family history. She had had two children, who were quite healthy, and had not suffered from any previous illness. There was no history of syphilis. The menopause occurred three years ago. About eighteen months ago she noticed that her fingers felt very cold and that sores formed frequently round the nails and on the tips of the fingers. These sores started as small inflamed patches which soon broke down and discharged pus. They were slow to heal, and those at the tips of the fingers though small on the surface seemed to extend deeply.

During the last eight or nine months, she again suffered from the coldness of her fingers accompanied by the formation of sores, but the condition was worse than it was during the previous winter and was associated with gradual swelling of the fingers, which when cold became almost black in colour. At the same time the right hand and then the arm began to get stiff, the skin becoming hard, swollen, and somewhat pigmented. This process rapidly spread to the skin of the chest. Further, she had for the last six months noticed an alteration in her facial appearance and some stiffness of the skin of the face.

She had lost a good deal of weight lately and had felt lassitude and disinclination for work. Her hair, which began to turn grey at the age of 25, had been coming out rather excessively. During the last winter she had been troubled by frequency of micturition, having usually to get up once or twice in the night.

On admission to St. Thomas's Hospital she presented the appearance of a symmetrical sclerodermia involving the arms, chest, neck and face, the remaining skin being normal. The temperature was normal

or subnormal, and beyond the condition of the skin no morbid physical signs were detected in the chest or abdomen, nor apart from the dulling of sensation over the affected areas was there any demonstrable change in the nervous system. Her general condition was good except for slight nervousness, and apart from the stiffness caused by the condition of the skin she complained of nothing but some slight itching. The hands were stiff, the fingers being kept in a position of semiflexion. The skin was cold and clammy to the touch and slightly cyanosed. On the tip of the fingers could be seen the scales left by the ulceration which occurred last winter. The palms were apparently unaffected. Over the forearms the skin was markedly atrophic and tightly stretched, so that it could be pinched up and did not pit on pressure. It was rough and scaly on the surface. Over the neck and chest the skin also appeared tightly stretched, but its surface was smooth and glossy and the induration was less marked. The skin of the face was generally stiff, the process obliterating the wrinkles and lines of expression, but mastication and deglutition were not interfered with. The forearms and backs of the hands presented a diffuse yellowish-brown pigmentation, which was also present, but to a less degree, over the chest and neck. Small atrophic patches about $\frac{1}{8}$ in. in diameter were scattered about, especially over the backs of the hands and fingers, but there were no definite patches of leucoderma or morphœa. Numerous fine branching telangiectases were scattered over the front of the chest and neck. Perspiration occurred normally over the palms of the hands, but in the regions implicated cutaneous secretions were abolished, and sensation was slightly diminished. The pulse could be felt in both radial arteries and the vessels were not apparently thickened. The blood-pressure was 125 mm. Hg. The thyroid gland was not enlarged, there was no exophthalmos, nor rhythmical tremor of the hands. The urine was acid, its specific gravity was 1010, and it contained a trace of albumin.

There has been no rise of temperature since she has been in the hospital. She was being given 1 gr. thyroid twice daily and massage was applied to the affected parts.

Dr. Corbett was indebted to Dr. J. J. Perkins for permission to show this case.

Dr. PERNET said that sclerodactylia was often preceded by appearances in the fingers resembling Raynaud's disease which ultimately reached the stage of sclerodermia.

PROCEEDINGS
OF THE
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VOLUME THE EIGHTH

COMPRISING THE REPORT OF THE PROCEEDINGS FOR THE
SESSION 1914-15

ELECTRO-THERAPEUTICAL SECTION



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Electro-Therapeutical Section.

October 16, 1914.

Dr. W. IRNSIDE BRUCE, President of the Section, in the Chair.

Discussion on the Localisation of Foreign Bodies (including Bullets, &c.) by means of X-rays.

Opened by Sir JAMES MACKENZIE DAVIDSON, M.B.

WHEN Dr. Ironside Bruce asked me to open a discussion upon the localisation of foreign bodies by means of X-rays, I felt that I ought at once to accede to his request, in view of the immediate interest of the subject at the present time, when so large a number of wounded are returning from the seat of war with foreign bodies lodged in their tissues. As everyone knows, it is a matter of easy accomplishment to ascertain by means of an X-ray examination whether any particle of metal be present in the body or not, but a much more difficult matter to ascertain the exact size, shape, and position of such a particle. A variety of localising methods have been suggested and put into practice, and we may hope to learn something of these from subsequent speakers in the discussion.

So far as my own contribution is concerned, however, I think it will be best for me to confine myself mainly to the method which I introduced sixteen years ago,¹ and which, I may add, has been adopted in the British Army. I have continued to use this method ever since its formulation, and with entirely satisfactory results. With your permission, therefore, I will proceed to give a detailed description of the method, together with some illustrative cases in which it has proved successful. It has been a matter of some regret to me that a larger number of workers have not availed themselves of its advantages, owing to what I can only consider an entirely mistaken idea as to its difficulties. Anything that is worth doing at all, of course, necessitates a

¹ *Brit. Med. Journ.*, 1898, i, p. 10, and ii, p. 1669.

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certain amount of time and attention in the first instance in order to learn the method of procedure, but once this method is learned, its application is generally simple. As an illustration I may mention the case of mixed astigmatism in eye work, which involves a considerable amount of labour in order to learn how to correct it, but, when such knowledge has at last been acquired, the practical gain is enormous. The amount of work necessary in order to gain this ophthalmic knowledge is certainly very much more considerable than that required to localise even the smallest foreign body with the utmost exactness by means of X-rays.

Before entering upon a detailed description of the procedure, there are some general principles which it will be advisable to make clear. The method which I adopt has two main advantages: In the first place, the two photographs which are taken of the part, the X-ray tube having been displaced between the first and second exposure in a manner to be explained presently, furnish data for the mathematical estimation of the size and position of any foreign body which is present. In the second place, these same two photographs, properly viewed, give a stereoscopic rendering in vivid relief, showing the exact relative position of the various parts, the only condition being that the observer must possess correct binocular vision. The view thus given to the surgeon is so lucid that from this alone, better accustomed as he is to anatomical projection than to mathematical calculations, he is enabled to estimate the anatomical position of the foreign body with which he has to deal. It is always well, however, that he should be furnished with exact measurements in order to confirm the impression based on the stereoscopic picture, and the facility which it affords for making these exact measurements is the chief recommendation for the method I am about to describe.

The method of precise localisation, while it does not necessarily involve any mathematical formulæ, is based, nevertheless, upon the simple facts of co-ordinate geometry. We are all familiar in our ordinary medical practice with two co-ordinates on a plane surface; in the temperature chart, for example, we have a horizontal line divided into time units, and at right angles to this a vertical line divided into degrees of temperature. The curve between these lines conveys at a glance the fluctuations of the temperature in relation to the time. A given distance at right angles, first from the one line and then from the other, would define the position of any intermediate point. We live in a world, however, not of two but of three dimensions—namely, length, breadth, and thickness—and if instead of measuring our co-ordinates

from two planes we measure them from three planes, each at right angles to the other two, we are able with equal certainty to define the exact position of any point in space. The most familiar illustration is supplied by the corner of a room in which the two walls meet at right angles to each other and to the floor, and any point in the surrounding space might have its exact position recorded by measuring its vertical distances from those three planes.

The application of this principle to the interpretation of the X-ray picture requires some quite simple arrangements. Two wires at right angles to each other and intersecting in the middle must be stretched across a frame, and the fine point on the surface of the anti-cathode or anode of the tube at which X-rays take their origin must be situated exactly vertically, either above or below the point of intersection of the wires. The distance separating the crossing of the wires from this crucial point in the tube must be ascertained, and is preferably expressed in the units of the metrical system. The part of the patient which is to be examined is placed upon these cross-wires, and either ink or, better still, nitrate of silver is used to mark their position upon his skin. One of the quadrants formed by the wires is also marked, both on the skin of the patient by means of the marking medium, and also on the radiograph by placing at the same position a piece of lead wire at the time the exposures are made. In addition to this it is well to take notes of the position of the patient's body, in view of possible alterations of pressure (in the soft parts of the leg, for example). When the limb is in position a horizontal line may be marked upon it, and the vertical distance to the plate may be noted. Reference can be made to this mark when, later, the surgeon prepares to operate.

The tube-holder must be capable of adjustment parallel to one of the intersecting wires, and for the first exposure the tube is moved away from the central position until the anode, still parallel to one of the wires, is opposite a point 3 cm. to one side of the intersection. After the exposure is made, the plate is removed and marked, and, while everything else remains exactly as it was before, the tube is shifted for the second exposure so that the anode, which remains parallel to the same wire, is now opposite a point 3 cm. to the other side of the intersection. Thus, in the interval between the exposures, the tube is moved a total distance of 6 cm., which corresponds sufficiently closely with the average separation of the eyes.

The plates, on being developed, reveal the image of the cross-wires clearly defined on the surface of the part, but, naturally, owing to the effect of parallax, the position of, say, a bullet at any depth in the

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tissues appears to have a different relation to the wires in each photograph. It is necessary, therefore, to reconstruct geometrically the relations which existed between the tube and the cross-wires at the time the photograph was taken. On a sheet of tracing paper or some transparent material two lines are drawn at right angles, and the paper is superimposed, first upon one negative and then upon the other, in such a manner that the intersecting lines are in register with the shadow of the corresponding lines in each photographic image. The shadows of the foreign body, which are not identical in the two cases, are traced, and it is also important to mark on the paper in which particular quadrant the shadow of the lead wire appeared.

In order to obtain an experimental replica of the conditions of exposure, the best plan is to place the tracing paper upon a slab of thick glass into which the same two intersecting lines have been cut with a diamond. This is mounted on a small table, and above it is a sliding T-piece, having a central notch at the top which is adjusted so as to be exactly above the point where the two lines intersect. By means of a sliding arrangement, the distance between this notch and the glass stage below is made to correspond with the distance between the anode of the tube and the cross-wires when the photographs were taken. At a distance 3 cm. to the right and to the left of this central notch are a couple of side notches, and, as X-rays suffer no refraction, but travel out into space along linear paths, their course can be faithfully represented by stretched threads attached to these side notches and brought down upon the stage below. Each thread is weighted in order to keep it taut, and the end which corresponds to the destination of the rays is fixed to the eye of a small needle.

The tracing paper having been fixed upon the glass stage in exact register with the cross-lines, the two threads are brought down each to the same definite point—say the centre—of the shadow of the bullet, the one thread being directed to the first shadow and the other to the second. It goes without saying that the shadow of the bullet more to the observer's left must have been produced by the tube when it was in the position more to the observer's right, and vice versa; therefore, the threads must cross each other, and, as obviously the centre of the bullet was situated at some point along the course of the straight lines indicated by the stretched threads, the absolute position must be the point at which these threads intersect.

The next thing to be done is to ascertain the exact distance of the point thus obtained in relation to the three planes. One co-ordinate is forthcoming immediately, for this distance from the crossing of the

threads to the flat horizontal plane below represents the exact depth of the position of the bullet from the part of the patient's skin which rested upon the photographic plate. If then we can imagine the cross-wires to be the base of vertical planes, we may consider a vertical plane to be erected on each of these wire shadows, and may represent it by some form of upright. The distance of the point of intersection of the threads is then measured, first from the vertical plane corresponding to one cross-line and then from the vertical plane corresponding to the other. These two distances are noted in millimetres, and, together with the measurement of the depth, give us all the co-ordinates.

It remains now to transfer our attention to the patient's body, which still bears the marks of the wires, and what is equally necessary in order to guard against lamentable error due to reversal, the identification of one of the quadrants by means of a mark on the skin corresponding with the shadow of a fragment of lead on the plate. The two co-ordinates representing the distance of the centre of the bullet from the two cross-lines are measured on the skin from the respective planes. These calculations give the point immediately below which the centre of the bullet is situated, and the distance, already ascertained, from the crossing of the threads to the horizontal stage below is exactly equivalent to the depth at which the foreign body will be found.

One consideration in connexion with this method is specially pertinent in view of the necessity of locating bullets in a large number of cases returned from the seat of war. It is possible to save both time and expense by using the method just described without a photographic plate at all, providing only that the foreign body is clearly visible on the fluorescent screen. All that is necessary is that the screen shall have a thin glass covering with the intersecting lines clearly indicated, either by a mark on the glass itself or by stretched opaque threads. By means of tracing paper placed in register, and such adjustments of the tube that the distance from the cross-wires can be calculated, a reconstruction of the position may be made, exactly as in the manner already outlined.

An apology is scarcely needed for having entered with such particularity into this method—a method already familiar to many whom I am addressing—since its value obviously depends upon observing accuracy in every detail. It is needless also to point out the various refinements of what is here stated in its crudity, as, for example, that this method enables not only the position of one point in the foreign body to be determined, but also the exact dimensions of the whole of the body, and the angle, possibly very oblique, at which it is lying in

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the tissues. Similarly, the method is available for the most accurate localisation of foreign bodies in the eyeball and orbit. The principles here are the same as in the case of a foreign body in the arm or leg, but the special mobility of the eye requires that attention should be paid to certain practical adjustments into which the scope of this paper forbids me to enter in detail. The use of a rifle sight, for example, is a convenient means of ascertaining the central position of the tube in relation to the cross-wires which are resting against the patient's temple. A critical adjustment is the placing of a piece of lead wire or foil on the patient's lower eyelid close to the eyeball, and the working out of the position of this point in relation to the corneal centre. When the usual measurements on the cross-thread localiser have been obtained, it is well to discover the position of the foreign object by taking a model eye, five or more times larger than natural size, and working out the relative distances by means of a surface gauge and pair of compasses.

As I have already pointed out, when the two photographs taken by the localisation method are combined, they form a stereoscopic picture. Stereoscopy alone, indeed, may often be sufficient to reveal to the trained eye the position of a foreign body by the relation which the intruder bears to the bones or to other anatomical details. This supposes, however, not only an intimate anatomical knowledge, but also the possession on the part of the observer of correct binocular vision. Some critical physiological optics underlie the whole question of seeing stereoscopically. The theory of such vision is, briefly, this, that when we have to converge (turn inwards) our gaze in order to see certain objects, we instinctively refer those objects to the nearer position, and when we have to diverge (turn outwards) we refer the objects to a further distance. A theory was current at one time that stereoscopic vision resulted from the very rapid motion of the eyes when focusing two images by convergence and two by divergence, thus conveying to the brain the impression of relative distance. It is possible, that in the course of evolution the stereoscopic faculty of perspective has been built up by means of the movement of the eyes, but the fact that the sense of stereoscopic relief, as conveyed to the brain of the observer, is based upon the relative position of the images on the fundi of both eyes is capable, if time permitted, of very simple demonstration. In this place a note need only be made of the necessity, in any form of stereoscope, that one eye should only see one image, and the other eye the other image.

I may, perhaps, be permitted a few words with regard to the

practical side of stereoscopic skiagraphy, as the arrangements are very similar to those already laid down for the more precise localisation method. In this case, again, the X-ray tube must be displaced between the two exposures by a total distance of 6 cm. (or 3 cm. on either side of the central zero point). The line connecting this displacement of the anodes must be parallel with one edge of the photographic plate, or with some corresponding line across the photographic images. If the tube is placed in the holder for working from above, some sliding arrangement for its displacement is necessary, and in this case a window covered with parchment, such as is used for making drums, is a good material, being able to support considerable weight, and at the same time being very thin, and quite transparent to X-rays. Piano wire across this window, near one of its margins, can be used to indicate the line of tube displacement.

The patient may lie upon a couch, the tube be in position above or below, and the plate be laid upon the part. The upper and lower borders of the plate should be marked with blue pencil on the skin, and it is also of service to fix on the skin a piece of lead wire—shaped as an L, to mark the left side—as an aid to correct registration when viewing the negative afterwards. It may be mentioned here that a convenient means of demonstrating stereoscopically the relation of the skin to the parts beneath is afforded by painting over the skin a little bismuth mixed with weak gum water. The patient must be kept absolutely still while the tube is displaced, one plate removed, and the second exposed in exactly the same position on the patient. Any movement of the subject between the two exposures would lead to false or pseudo-stereoscopic effects.

The two photographs obtained in this way, when viewed stereoscopically, combine in excellent relief. The most suitable arrangement for viewing X-ray stereoscopic transparencies is the Wheatstone stereoscope, but the original negatives can be viewed entirely without apparatus if the observer will take the trouble to learn how to see stereoscopically. For this purpose the two large negatives are placed side by side in correct position against a window or some other means of illumination, and the observer converges his eyes to a point between them. After a little practice he will find the stereoscopic image making its appearance, diminished in size, it is true, but very clear, in the space between the eyes of the observer and the negatives. The double images at either side, which are troublesome at first, can be eclipsed by bringing up the hands laterally, from the sides.

The same general principles govern stereoscopic fluoroscopy, which,

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it appears probable, will be used in the not distant future much more generally in hospitals than is the case at present. There is, indeed, a considerable field open for some practical and convenient apparatus for carrying out this method. The stereoscopic fluoroscope involves the use, either of a single tube with two anodes, or of two tubes with their anodes in a horizontal line some 7 cm. apart. The patient is interposed between the tubes and a large fluorescent screen, and each tube is illuminated alternately for an instant while the observer looks through some form of eyepiece which eclipses each eye in turn. In order to secure persistence of vision, this cycle of alternations must take place at least ten times per second, and, each tube producing one shadow at a time, and each eye alternately seeing a separate image, the observer is enabled to combine the shadows into a single stereoscopic picture.

The great value of stereoscopy scarcely needs any enforcement, but its application to the localisation of foreign bodies is necessarily limited to the more simple and patent cases. For greater precision one must fall back upon mathematical calculations, but, fortunately, as this paper has attempted to show, such calculations present no very formidable obstacle. The mastery of some such method for ascertaining the exact situation of a particle of metal embedded in the tissues was never more important than to-day, when the surgeon is confronted with batches of cases in which it is necessary to extract bullets and fragments of shell with the utmost dispatch and directness, and the least possible damage to the surrounding parts. There are methods of precise X-ray localisation in practice other than the one upon which I have dwelt more particularly in this paper, and these, doubtless, will find their exponents in the course of the discussion.

I am sure that in the future—and the not very far future—in many hospitals, especially at a time like this, in which there is a rush of cases, if you have a good stereoscopic fluoroscope you will be able to locate foreign bodies, by inspection, with the same certainty with which you can see fruit in aspic or clear jelly, and I hope that some of the younger men will work that out, and thus enable a great deal of time and trouble to be saved. I hope to hear of other methods, perhaps better and simpler than those I have described to you.

Mr. LOCKHART MUMMERY, in response to the President's invitation, said he had hoped to hear other radiographers speak before he dealt with some surgical aspects. He was exceedingly interested in what Sir James Mackenzie Davidson had said, because at the present time it was vital

that there should be some reliable and practical method of localising bullets and shell fragments. He had already, since the war began, had some experience of cases of bullet wounds where localisation was essential, and there could be no doubt that some of them were exceedingly difficult. The method of localisation just described seemed to be a really excellent one if it could be adapted to the cases. He understood Sir James to contend that there should be a steel or plated measure which, if necessary, should be passed down the plane indicated until the bullet was found. But one of the difficulties he had found with bullets at the present time, at any rate Mauser bullets, was that the men wounded by them were not received here until a week or ten days after being hit; so that the best part of a fortnight had elapsed before the bullet could be extracted. By that time the bullet had become surrounded by a mass of fibrous tissue of cartilaginous hardness, under which circumstances a probe was useless. One put the finger in, or passed a probe, and felt something like a bullet, but there was no differentiating as between cartilage and metal. The only means of distinguishing the bullet was by the impact of a knife or needle on the metallic surface. It was most important for the surgeon to cut deliberately straight down to the spot where he knew the bullet was located; hence the importance of localisation methods. The greatest difficulty in dealing with these bullets was that they were often in such very difficult and tiresome situations. One had frequently to decide whether any attempt at removal should be made, owing to the region involved; it might be the anterior mediastinum, or beneath the subclavian artery on the left side, which he would not dream of cutting down upon. Some of the most interesting cases were those in which the bullet, generally a Mauser, had struck some hard object which was in contact with the patient's skin. The effects then produced were curious and often disconcerting from the surgeon's point of view. The bullet struck such an object as a buckle or a sword-belt or sword-hilt—in one case a revolver butt, close up to the belt—and passed through a small entrance wound and then spread widely, in tiny fragments, almost in the same manner as a shell, on a small scale. He had brought skiagrams of three cases on which he had operated recently. In one case the bullet struck the butt of the officer's revolver as he carried it near the abdomen. The entrance wound was about an inch long, and when the bullet got inside it broke up into ten or twelve pieces, mostly casing, but partly lead. Some of the fragments were in front of the hip-joint, some in the groin, some in the thigh. As would be seen by the skiagrams—all of which had been excellently taken by the President—it was not easy to "fish

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out" so many pieces of bullet from different regions. Moreover, under the circumstances he had mentioned, the wound was very septic, and large amounts of other material were carried into the wound. In this case a piece of tobacco pouch and a little tobacco were carried in, resulting in an elaborate and complicated type of wound.

A still more interesting case was one in which a shrapnel bullet struck the buckle of a wrist watch. This had an extraordinary effect on the bullet, much of it being broken up into fragments as fine as pepper. He removed twenty-two fragments which approached a reasonable size, but fragments were found to have gone between every tendon and between every nerve. In such cases it was not merely a question of localisation, for it was almost a surgical impossibility to remove every one of the fragments. Yet this man was recovering well, with the exception that a tiny fragment had cut the deep branch of the ulnar nerve, which, of course, could not be repaired.

In another case an officer was struck by a Mauser or shrapnel bullet—he did not know which—on the sword-belt, and the bullet travelled through the wing of the ilium. One piece travelled forward and tore open his sigmoid flexure. Some pieces of bone were driven backwards post-peritoneally, some of them travelling to the other side of the spine. The patient had a fæcal fistula through the wound, and a violent secondary hæmorrhage more than once from the lumbar artery, which was cut close to the spine. He (the speaker) closed the fæcal fistula from the abdomen, and the patient was recovering; but he doubted whether the bullet could be removed, as it could not be reached, except through the peritoneum or through all the posterior lumbar muscles. It seemed that the bullet must be left in situ. Localisation was not the problem there.

Dr. Ironside Bruce had localised every one of his cases for him, and every bullet which had been cut down upon had been found.

Mr. COOPER said he did not feel he could add much to what Sir James Mackenzie Davidson had submitted. For upwards of two years he had been localising foreign bodies in the eye at the Moorfields Hospital, during which period he had had over 300 positive cases, and there had been no complaint of inaccuracies from the staff. The only difference between the localisation of bullets in various parts of the body and foreign bodies in the eye was, that in the case of the eye one was dealing with an extremely mobile organ, which, as Sir James said, one must take particular care to immobilise. And it must be immobilised in a certain position, so that one could say accurately from the

skiagrams where the centre of the cornea happened to be, as the surgeon preferred to make all his measurements from the centre of the cornea. The eye itself, under normal conditions, was transparent to X-rays, therefore some pointer must be used from which the centre of the cornea could be estimated. For that purpose, under Sir James's tuition, he had used a small piece of fuse wire, which he fixed with strapping immediately below the centre of the cornea when the patient looked straight in front of him. The distance below did not matter so long as it was known, and measured accurately, and this was easily done by means of a pair of dividers. One simply measured up the end of the fused wire, and measured the distance from the co-ordinates of the foreign body in situ. He had brought specimen charts which would show how it was carried through.

Results could be checked quite surely by making the fuse wire a known length and then measuring the fuse wire in space by means of the cross-thread. If the result was identical with the known length one could feel satisfied that the other measurements were correct.

It had been said that this method of localisation required the employment of a quantity of costly and intricate apparatus; as a matter of fact, one only required a reel of cotton, a reel of iron wire, and a pair of compasses, besides the ordinary things which the practitioner would probably have by him, especially one possessing an X-ray installation. He did not mean that it was not more convenient and handy to have a proper apparatus suitably fixed, but it could be done without, and he had proved it.

Dr. HAMPSON said he did not propose, as the hour was late, to occupy the time of the meeting to any extent. All members of the Section knew of the valuable work of Sir James Mackenzie Davidson in connexion with radiography and the work of the surgeon. All this advance depended on the happy thought by which Sir James adapted to this research the principles used by geometers in measuring, by triangulation, the height of a mountain which was inaccessible, such as was employed to measure the height of Mount Everest. It was now possible to see and measure the depth beneath the surface of a foreign body. All that those who followed Sir James could hope to do in the matter was to follow out the principles in the way which seemed to promise most usefulness in the future. Sir James had mentioned the need for some pains and trouble to be taken, and perhaps the need for a good deal of that had accounted for the method not being more generally practised so far. Surgeons, like other people, were apt to

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follow the line of least resistance, and to adopt a simple and handy means in place of a more complicated one. He would show, by means of the epidiascope, a method which he had adopted for the purpose of expediting results, and to obviate a separate calculation for each case. It took the form of a scale.

As Sir James had shown, the depth to be found depended upon the actual depth, the distance of focus from screen, the distance through which the focus was moved, and the distance through which the shadow on the screen moved, between the first and second operations. These were all mutually related. Now, if the distance from focus to screen were kept constant, say at 50 cm., and if the movement of the focus were constant, say at 10 cm., only two factors remained to vary with each other—namely, the depth of the foreign body and the movement

cm. on Screen



cm. Depth: F.B.

of the shadow. How these varied could be worked out on a drawing-board with a fine pencil in the study more exactly than with strings and weights in the presence of surgeons in a hurry. Moreover, if a number of cases were worked out beforehand, the results could be put on to a scale such as that shown in the illustration. If the two positions of the shadow were marked on the lead-glass cover of the screen, it would only be necessary to put the lower edge of the scale against the marks to read off without further trouble the depth of the foreign body. Without more apparatus than this scale any radiographer could, therefore, give at once the depth of a bullet more correctly than any but the most skilful performers with more complicated apparatus.

A little extension of the scale made it possible to get the results with equal readiness in cases where the distance between screen and focus was not fixed at 50 cm.; so that it would not be necessary to have a couch which admitted of adjusting this distance. Messrs. Newton and Wright had such a scale in preparation.

Mr. SANER said that, as Resident Surgical Officer at Guy's Hospital, he looked on this subject from the surgical standpoint. It was his privilege there to extract all the needles where it was possible to treat the cases in the Out-patient Department. At first, it had been his practice to cut down on the marks made by the radiographer. The use of a local anæsthetic often made the depth greater than it appeared under the rays and much time was spent in searching for the needle, with varying damage to the tissues under dissection. He was glad to hear Sir Mackenzie Davidson state that he considered the removal of foreign bodies one of the most difficult operations in surgery. In submitting the method he had used during the last six months on some thirty cases, he hoped to show that it was more rapid and more certain than the usual method of localising first and operating without the aid of the rays. Most of the needles were removed from the hand. Where the patient could be persuaded to wait for a week to see if all symptoms disappeared without removal, it was found that an operation was often avoided.

The position of the needle was found by rotating the part under the screen and the end nearest the skin marked down. The rays were then turned off and after sterilising with iodine and anæsthetising with a solution of novocain and adrenalin, an incision an inch long was made through skin and fascia. A fine pair of mosquito forceps were then put in the wound with the points closed and the rays turned on. Using the artery forceps as a probe and rotating the limb, it was comparatively easy to make out the relative positions of the needle and the forceps (fig. 1). When the point of the probe was seen to touch the needle the forceps were withdrawn slightly, the jaws opened, and pushed forward again until the needle was seen to lie in the position indicated in fig. 2. The forceps were then closed and moved laterally, so as to make sure the needle had been grasped (fig. 3). Under an ordinary hand lamp, it was now possible to expose the needle by blunt dissection along the handle of the grasping forceps. It was as well to fix another pair of forceps on to the needle before relaxing the first pair, even when a good exposure had been obtained. He claimed that it was possible with some practice to localise the needle and complete the operation in twenty minutes. He had done three consecutive cases in the hour, and he challenged the ordinary methods to compare with this in rapidity.

He would like to know whether all the bullets referred to by Mr. Lockhart Mummery were giving trouble. He (Mr. Mummery) had stated that it was of little use using the probe as in some cases the bullets were surrounded by fibrous tissue. He suggested that in such



FIG. 1.
Forceps seeking needle.

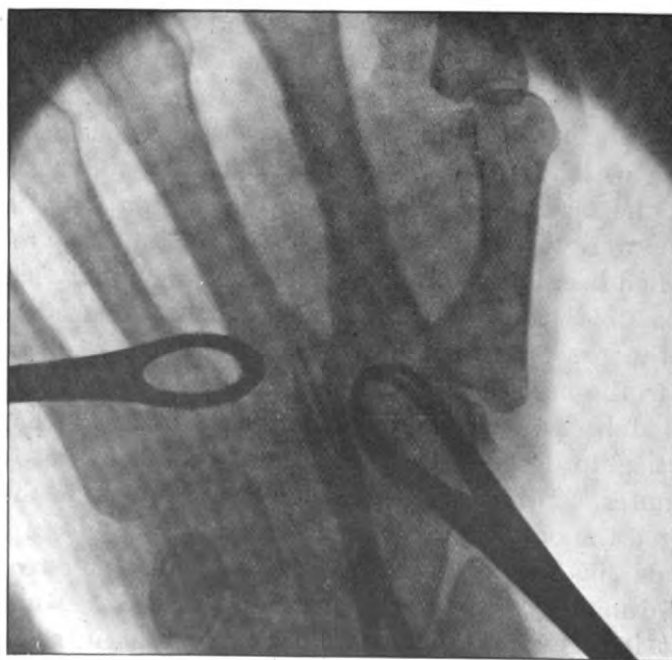


FIG. 2.
Forceps enclosing needle.

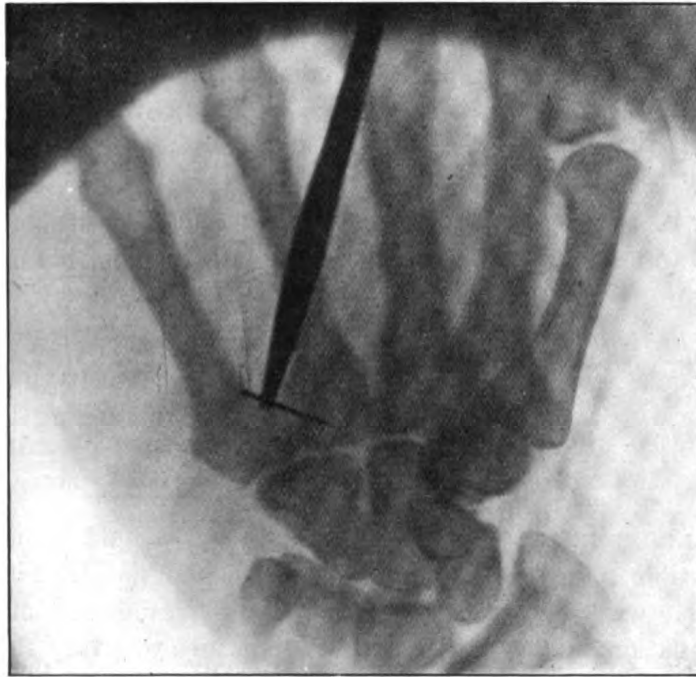


FIG. 3.
Forceps grasping needle.

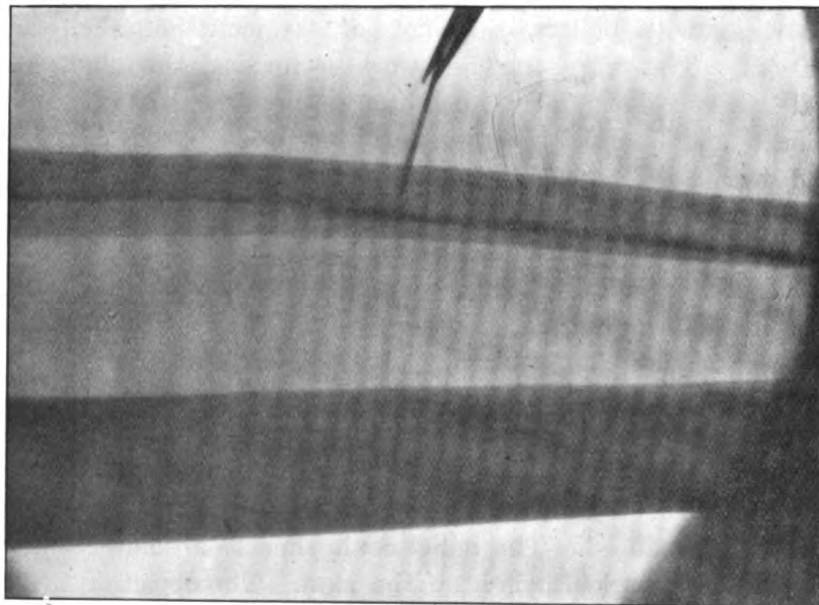


FIG. 4.
Forceps grasping needle.

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cases removal was hardly necessary. Foreign substances, such as plates on bones, if applied aseptically, caused no trouble. They, however, soon became surrounded with dense fibrous tissue. If bullets were in a similar state in the tissues, or bones, little trouble seemed to be caused.

Mr. H. N. Eccles, Assistant Radiographer to the Hospital, had been most kind in helping him with many useful suggestions in each case. He wished to associate Mr. Eccles's name with the communication.

The PRESIDENT (Dr. W. Ironside Bruce) said he would like to express at once a warning he had in mind in reference to the procedure adopted by Mr. Saner—namely, the possibility of damaging the skin of his hands by the continual X-rays exposure.

Mr. SANER, replying to the President's remarks, said he had thought of the possible danger to his hands, but he had not, so far, had any trouble. He was attempting to obtain some gloves as protection during the manipulations under the rays. The exposure was very short in any one case. His body was protected.

Dr. BAILEY stated that he had made 350 X-ray examinations of some 550 wounded coming from Mons, the Marne, and the Aisne; all the cases with bullets, shrapnel, or fragments of shell required localisation. The surgeons he worked for at the 2nd Eastern General Military Hospital at Brighton preferred to have an antero-posterior and a lateral photograph of their cases; they were not so satisfied with a stereoscopic view or with a localisation (such as Sir James Mackenzie Davidson's) in which the surgeon had to accept a statement by the radiographer that the foreign body was at a certain depth, vertically, below a point marked on the skin. He used Sir James's method frequently, however, where the surgeons' favourite method was impossible, as in the pelvis, high up about the shoulder-joint, &c. A third method of localisation was extremely useful—namely, using a vertical ray and covering two marked points in front and behind with lead rings, so that the ring shadows and the bullet shadow coincided, then moving the X-ray tube out so that three shadows were produced. The bullet could then be absolutely located as regards the two marked points on the skin. The object of the radiographer should be to produce a mental picture of the position of a bullet so clearly in the surgeon's mind that he searched for it with extreme

confidence, and it was often worth while to prove the position of the bullet by four or five different methods in order to produce that confidence, and as a consequence a successful operation.

Sir JAMES MACKENZIE DAVIDSON, in replying on the discussion, said he felt exceedingly gratified that it had been so interesting. When Mr. Lockhart Mummery spoke about some of the wounds being septic by the time the patients arrived in this country, he did not know whether that gentleman meant to imply that on this account the localisation method was difficult to apply. [Mr. MUMMERY: No.] There were, of course, many details connected with the system which could not be entered into in a single paper; indeed, he feared he had already wearied his audience. With regard to the sagging of the flesh, and the consequent difficulty in arriving at the true depth, he now had a means of overcoming that. In early days he found that in his estimation of the depth of the needle there was a greater difference between that and the depth found at the operation than he could allow for. In one case a lady who ran a needle into the calf of her leg had only one leg, hence particular care had to be taken, and this was not a case in which the foreign body could be left alone, though he agreed there were such cases. As this lady got about on crutches, her one leg was not exercised, and so was flabby instead of firm. When the leg was put down, the flesh collapsed together, and the depth appeared to be less than when the tissues were in a more or less elastic and firm condition. Therefore, when there was a yielding of that kind he took a surface-gauge and marked a line on the surface of the body with nitrate of silver when it was being X-rayed and in this way the absolute depth could be ascertained, however swollen the part might be. With regard to bullets whose effect seemed to resemble that produced by explosive bullets, owing to striking hard metal casing, he had several cases like that in the Boer War, and extraction was very difficult, and could not be done properly. But if the stereoscopic fluoroscope should come to be a practical actuality, these bodies could be picked out with the greatest ease. With regard to the failure of the probe to detect a foreign body, he had an arrangement which he introduced thirty-five years ago and used in a jaw case. A woman in Aberdeen was shot in the face, and the bullet could not be found. Graham Bell had just brought out his telephone, and he (the speaker) took a two-shilling piece (later he used a plate of pure silver) and attached this to the telephone wire, and placed it on the moistened skin of the patient, and as soon

as the probe-electrode which was attached to the other pole of the telephone touched metal in the tissue, a current came through. [Mr. MUMMERY: The difficulty is that the bullet is embedded in cartilaginous tissue, and you cannot get at it.] It was useful to know that one could come down upon it. He agreed that in some cases it was wiser to leave the bullet alone; he had known some disasters from unwise interference. In one case, at Netley, a bullet was localised deep in the mediastinum, and he advised that it be left alone. The man went to Scotland, the country whose inhabitants were noted for their caution; but the surgeons decided to go for the bullet, and the result was fatal. He recently had the case of an officer who was shot with shrapnel. Everything healed up well, but he had violent pain in the abdomen. The localisation of the bullet was found to have been correct, for it was in his gall-bladder. It was removed, and the patient was now progressing well. Dr. Hampson's method of devising a scale, to save time and trouble, was very nice, but he would be interested to know how it could be applied to eye work.

He had a list of disasters where some method of localisation had been employed, and in some, he was sorry to say, no method had been used at all. During the last week he had had four cases in which operation had been tried for removal of a bullet but failed, and the bullet was found in a different location, and yet it was so embedded that it could not have shifted. A very slight difference in the position of the tube might give an erroneous idea of the locality of the foreign body.

He thought this discussion would have served a practical end if it resulted in impressing upon the surgeon the necessity of taking some trouble in this matter of localisation before the patient was placed on the operating table. Half-an-hour spent in this way was far better than ten minutes extra occupied during the actual operation. Whatever method was used, it was always worth while to take trouble.

He wished to thank members of the Section and all present for their kind reception of his paper, and he hoped he had not been wearisome.

The PRESIDENT announced that the next meeting of the Section would be held on January 15, and it would be a clinical evening. He asked for an early intimation concerning material which members proposed to bring forward for that occasion.

Electro-Therapeutical Section.

January 15, 1915.

Dr. W. IRNSIDE BRUCE, President of the Section, in the Chair.

Discussion on New Methods for Localisation of Foreign Bodies.

Opened by A. E. BARCLAY, M.D.

THE apparatus I have to bring forward is so simple that I feel some compunction in submitting the instrument I use for localisation. All radiographers base their localising work upon triangulation, a principle as old as the hills; it is a surveying principle which Sir James Mackenzie Davidson was the first to apply to medicine. It depends on the fact that X-rays proceed in a straight line, therefore the shadow cast by a foreign body must lie somewhere on that straight line. If one moves the tube, the shadow of the foreign body on the screen must also move. If one measures the distance that the shadow moves and that from the tube to the screen, one can work out by a mathematical formula the exact distance of the foreign body to the screen (or plate, by making two exposures on the one plate). This entails *exact* readings of very small measurements and a certain distrust of one's figures. I therefore devised a reproduction of the usual diagram by which the whole process will be worked out mechanically, leaving no room for any possible mistake from misreading of figures or errors in calculation.

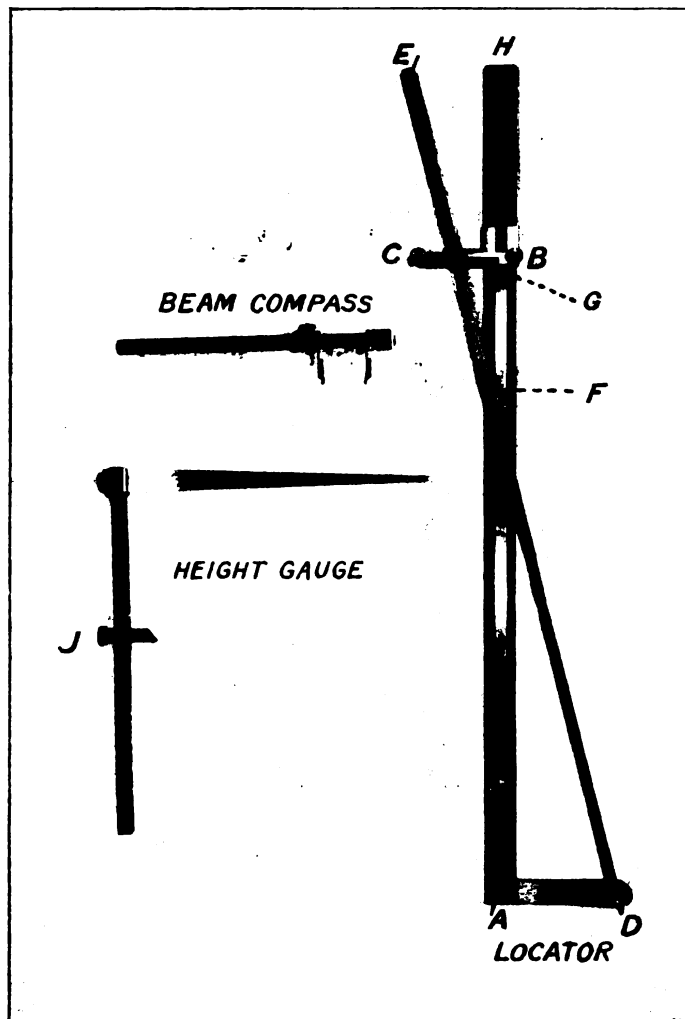
The height of the edge of the couch above the tube centre is a fixed distance, and to this has to be added the extra height of the screen or plate above this point. This is easily done by a right-angled HEIGHT GAUGE with a sliding piece, *J*, which indicates this distance on a scale on the vertical arm of the right-angle gauge when the cross-arm is brought down to the plate. The foreign body is located and its position

on the skin marked through a hole in a small fluorescent screen (Captain Holland's device), narrowing the diaphragm to its smallest extent and taking pains that the tube is accurately centred in relation to the diaphragm. The diaphragm is then opened and the tube is displaced a definite distance, 10 cm., and the new position of the shadow is marked on the screen, the first position being indicated by the hole in the fluorescent screen, which has not been moved since the skin was marked through it. For large foreign bodies, in positions where they are quite clearly seen, this is sufficient, but in a large number of cases, especially the more difficult ones, I make two exposures on the one plate, thus obtaining an accurate record.

The BEAM COMPASS, provided with small knife-blade edges facing outwards, is then employed to gauge the movements of the shadow, and this setting of the edges is then applied to the locator. In the LOCATOR the points *A* and *D* represent the two positions of the tube. The line *AH* is the line of the central beam of rays by which the skin mark and first position are made; the line *DE* represents the beam of rays casting the second shadow. The sliding cross-piece, *BC*, is the screen or plate, and this is fixed at the ascertained tube-screen distance by the screw at *B*, the readings in centimetres and inches being marked on the boxwood rule, *AH*, on which the steel slip is mounted. The steel slip, *DE*, moves from the point *D* and can be clamped by the screw at *C*. One blade of the knife edges of the beam compass, which has been set, is placed at the point *G* (the line of the central beam), and the slip, *DE*, is then moved up against the other blade and clamped in position by the screw, *C*. The whole process has now been accurately reproduced, and the shadow must be due to a foreign body lying at the point where the rays cross—i.e., at *F*. All that has to be done is to measure the distance, *GF*. This is done in a moment by expanding the blades of the beam compass between these two points, and this gives the exact distance between the plate and the foreign body.

It is comparatively seldom that the plate or screen is actually in contact with the skin at the point from which the localisation is made. This source of error presents no difficulty if a small piece of metal is placed on the skin close to the skin mark on the same level. Both shadows are then localised and the correction made by subtraction. It is surprising how big an error there is from this source, and how misleading are the results if the plate is tilted in an attempt to overcome the error. If the plate is not horizontal—i.e., in the same plane as the tube move-

ment—there is an even greater miscalculation as the result. Because of these sources of error and the double localisation involved, plates are preferable to screen localisation in all except the obvious straightforward cases.



Instrument for use in localisation of foreign bodies.

The use of the locator is absolutely simple; it can even be done by the light of the fluorescent screen, and the whole process is absolutely mechanical and positive. There are no small measurements to be read, and the results given are as accurate as those of the cross-thread localiser.

DISCUSSION.

Dr. HAMPSON: I wish to refer again to the system of which I briefly spoke at the last meeting of the Section. Having obtained the marks on the screen in the way shown by Dr. Barclay, one notes on the scale the number of centimetres they are actually apart. On the other edge of the scale one notes that the depth of the foreign body is, say, 7. That is one advantage the system I am speaking of possesses over Dr. Barclay's, which, in its essence, was exhibited at a meeting of the Röntgen Society a month ago. It is a useful system, a neat abbreviation of the full-size Mackenzie Davidson system, very correct and handy. And if it were not for the still further advance which disposes of the necessity of having even such an instrument, since one is able to read off the depth directly from the screen, it would be most useful. (Table exhibited.) The system is capable of much further development. Since then, Captain Thurstan Holland has further elaborated that table so as to use any distance between anticathode and screen; or one may elaborate a scale system, such as is shown on the first slide. The vertical line of dots represents the distance of the anticathode from the screen; and the horizontal lines of dots represent the degree of movement of the image upon the screen. One of the merits claimed for this system is the extreme accuracy and minuteness of the observation rendered possible; on the scale one can easily see $\frac{1}{2}$ mm. For very exact work one can have a double impression on the plate, and measure accurately down to $\frac{1}{2}$ mm., whereas most of the charts which might be drawn do not go beyond $\frac{1}{4}$ cm. or $2\frac{1}{2}$ mm. Moreover, the scale is very neat and handy, and can easily be carried in the waistcoat pocket.

I wish to mention some misapprehensions concerning the method. Some say it is very well for rough work, such as finding bullets, but something more minutely accurate is wanted. But I claim for this system that it is most exact, quite as exact as the crossed-thread method, with nine-tenths of the work done beforehand; and the accuracy must be greater than where one is dealing with flexible threads, which may be caught by one another, and may be displaced by the scale with which one is working. But a line drawn by a fine pencil on a sheet of paper cannot be disturbed by a line drawn across it. It is said that the original method has the advantage that it shows the position of the foreign body in relation to fixed points, such as to a bony point in the body. But this method does exactly the same. And if one wishes to learn the possible obliquity of a body, one can ascertain the depths of its

two ends as exactly and thoroughly as by the original crossed-thread method. So, while admitting our indebtedness to Sir James Mackenzie Davidson, I do not admit any falling off in accuracy by the method just described. I wish to say how deep is the debt to Sir James for his method, upon which the other modifications are founded.

Captain THURSTAN HOLLAND: I have no new localisation method to bring before the meeting. The developments which have taken place are all based upon Sir James Mackenzie Davidson's, which, I think all must admit, is the most accurate of all, and must remain so. The

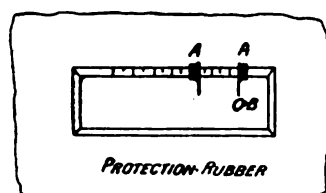


DIAGRAM I.

A A, two movable metal pointers on scale; B, hole in glass and screen.

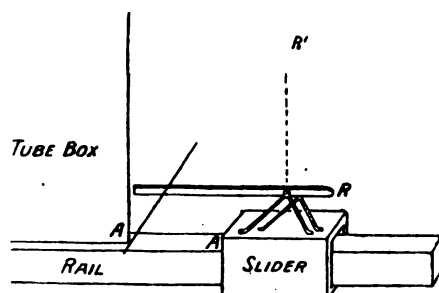


DIAGRAM II.

A A, 10 cm.; R, pointer raised to R' fixes the slider to the rail.

devices now used are time-saving methods, but they are not quite so accurate as Sir James Mackenzie Davidson's original method. Though in a busy base hospital, with wounded pouring in by hundreds, it is desirable to have shorter methods, the original method is the best. When Dr. Hampson described his method at the last meeting, I felt it was worth the whole journey up to London to hear, and I returned with the hope that I might be able to improve on it. In applying this method it soon became apparent that the large fluorescent screens mounted in large frames were impossible of application for exact work. In many cases these could not be brought into contact with the skin of

the area to be examined, and also could not be kept in position. After several experimental screens the following has been found to be the best. This is a small screen 6 in. by 2 in., and fixed to the back of a very light wooden frame. The screen has a thin piece of lead glass in apposition with its fluorescent surface. At a distance of a little more than 1 in. from one end there is a small round hole right through the

DISTANCES OF ANTICATHODE TO SCREEN. IN CENTIMETERS

	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	
$\frac{1}{4}$	$1\frac{9}{41}$	$1\frac{8}{41}$	$1\frac{7}{41}$	$1\frac{6}{41}$	$1\frac{5}{41}$	$1\frac{4}{41}$	$1\frac{3}{41}$	$1\frac{2}{41}$	$1\frac{1}{41}$	1	$\frac{40}{41}$	$\frac{39}{41}$	$\frac{38}{41}$	$\frac{37}{41}$	$\frac{36}{41}$	$\frac{35}{41}$	$\frac{34}{41}$	$\frac{33}{41}$	$\frac{32}{41}$	$\frac{31}{41}$	$\frac{1}{41}$
$\frac{3}{4}$	$3\frac{21}{43}$	$3\frac{18}{43}$	$3\frac{15}{43}$	$3\frac{12}{43}$	$3\frac{9}{43}$	$3\frac{6}{43}$	$3\frac{3}{43}$	3	$2\frac{40}{43}$	$2\frac{37}{43}$	$2\frac{34}{43}$	$2\frac{31}{43}$	$2\frac{28}{43}$	$2\frac{25}{43}$	$2\frac{22}{43}$	$2\frac{19}{43}$	$2\frac{16}{43}$	$2\frac{13}{43}$	$2\frac{10}{43}$	$2\frac{7}{43}$	$\frac{3}{43}$
$1\frac{1}{4}$	$5\frac{25}{45}$	$5\frac{20}{45}$	$5\frac{15}{45}$	$5\frac{10}{45}$	$5\frac{5}{45}$	5	$4\frac{40}{45}$	$4\frac{35}{45}$	$4\frac{30}{45}$	$4\frac{25}{45}$	$4\frac{20}{45}$	$4\frac{15}{45}$	$4\frac{10}{45}$	$4\frac{5}{45}$	4	$3\frac{40}{45}$	$3\frac{35}{45}$	$3\frac{30}{45}$	$3\frac{25}{45}$	$3\frac{20}{45}$	$\frac{15}{45}$
$1\frac{3}{4}$	$7\frac{21}{47}$	$7\frac{17}{47}$	$7\frac{13}{47}$	7	$6\frac{40}{47}$	$6\frac{33}{47}$	$6\frac{26}{47}$	$6\frac{19}{47}$	$6\frac{12}{47}$	$6\frac{5}{47}$	$5\frac{45}{47}$	$5\frac{38}{47}$	$5\frac{31}{47}$	$5\frac{24}{47}$	$5\frac{17}{47}$	$5\frac{10}{47}$	$5\frac{3}{47}$	$4\frac{43}{47}$	$4\frac{36}{47}$	$4\frac{29}{47}$	$\frac{22}{47}$
$2\frac{1}{4}$	$9\frac{9}{49}$	9	$8\frac{40}{49}$	$8\frac{31}{49}$	$8\frac{22}{49}$	$8\frac{13}{49}$	$8\frac{4}{49}$	$7\frac{44}{49}$	$7\frac{35}{49}$	$7\frac{26}{49}$	$7\frac{17}{49}$	$7\frac{8}{49}$	$6\frac{48}{49}$	$6\frac{39}{49}$	$6\frac{30}{49}$	$6\frac{21}{49}$	$6\frac{12}{49}$	$6\frac{3}{49}$	$5\frac{43}{49}$	$5\frac{34}{49}$	$\frac{25}{49}$
$2\frac{3}{4}$	$10\frac{40}{51}$	$10\frac{29}{51}$	$10\frac{18}{51}$	$10\frac{7}{51}$	$9\frac{47}{51}$	$9\frac{36}{51}$	$9\frac{25}{51}$	$9\frac{14}{51}$	$9\frac{3}{51}$	$8\frac{43}{51}$	$8\frac{32}{51}$	$8\frac{21}{51}$	$8\frac{10}{51}$	$7\frac{50}{51}$	$7\frac{39}{51}$	$7\frac{28}{51}$	$7\frac{17}{51}$	$7\frac{6}{51}$	$6\frac{46}{51}$	$6\frac{35}{51}$	$\frac{24}{51}$
$3\frac{1}{4}$	$12\frac{14}{53}$	$12\frac{1}{53}$	$11\frac{41}{53}$	$11\frac{28}{53}$	$11\frac{15}{53}$	$11\frac{2}{53}$	$10\frac{42}{53}$	$10\frac{29}{53}$	$10\frac{16}{53}$	$10\frac{3}{53}$	$9\frac{43}{53}$	$9\frac{30}{53}$	$9\frac{17}{53}$	$9\frac{4}{53}$	$8\frac{44}{53}$	$8\frac{31}{53}$	$8\frac{18}{53}$	$8\frac{5}{53}$	$7\frac{45}{53}$	$7\frac{32}{53}$	$\frac{19}{53}$
$3\frac{3}{4}$	$13\frac{35}{55}$	$13\frac{20}{55}$	$13\frac{5}{55}$	$12\frac{45}{55}$	$12\frac{30}{55}$	$12\frac{15}{55}$	12	$11\frac{40}{55}$	$11\frac{25}{55}$	$11\frac{10}{55}$	$10\frac{50}{55}$	$10\frac{35}{55}$	$10\frac{20}{55}$	$10\frac{5}{55}$	$9\frac{45}{55}$	$9\frac{30}{55}$	$9\frac{15}{55}$	9	$8\frac{40}{55}$	$8\frac{25}{55}$	$\frac{10}{55}$
$4\frac{1}{4}$	$14\frac{52}{57}$	$14\frac{35}{57}$	$14\frac{18}{57}$	$14\frac{1}{57}$	$13\frac{41}{57}$	$13\frac{24}{57}$	$13\frac{7}{57}$	$12\frac{47}{57}$	$12\frac{30}{57}$	$12\frac{13}{57}$	$11\frac{53}{57}$	$11\frac{36}{57}$	$11\frac{19}{57}$	$11\frac{2}{57}$	$10\frac{42}{57}$	$10\frac{25}{57}$	$10\frac{8}{57}$	$9\frac{48}{57}$	$9\frac{31}{57}$	$9\frac{14}{57}$	$\frac{1}{57}$
$4\frac{3}{4}$	$16\frac{6}{59}$	$15\frac{46}{59}$	$15\frac{27}{59}$	$15\frac{8}{59}$	$14\frac{48}{59}$	$14\frac{29}{59}$	$14\frac{10}{59}$	$13\frac{50}{59}$	$13\frac{31}{59}$	$13\frac{12}{59}$	$12\frac{52}{59}$	$12\frac{33}{59}$	$12\frac{14}{59}$	$11\frac{54}{59}$	$11\frac{35}{59}$	$11\frac{16}{59}$	$10\frac{56}{59}$	$10\frac{37}{59}$	$10\frac{18}{59}$	$9\frac{58}{59}$	$\frac{19}{59}$

CHART TO SHOW VARIOUS DEPTHS OF A FOREIGN BODY.
FOR A TUBE DISPLACEMENT OF 10 CENTIMETERS

Christiaan Holland

glass and screen. Attached to the wooden frame all round is protective X-ray rubber. Along one side of the screen commencing exactly opposite the centre of the hole is a 10-cm. scale. On this scale are two movable metal pointers extending half-way across the surface of the screen on the glass. (Diagram I, *see* p. 23.) In actual use this screen is laid upon the part under examination, the long part from the hole being in the opposite direction to that in which the tube is to be displaced. It will be seen that a small screen like this can be adapted to almost any

Having found the shadow of the foreign body on the screen, the area of the illumination is diaphragmed down to a space about 1 in. square—this is done by means of a metal adjustable diaphragm on the top

DISTANCES OF DISPLACEMENT OF SHADOW OF FOREIGN BODY

	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	
$\frac{1}{2}$	$2\frac{8}{21}$	$2\frac{7}{21}$	$2\frac{6}{21}$	$2\frac{5}{21}$	$2\frac{4}{21}$	$2\frac{3}{21}$	$2\frac{2}{21}$	$2\frac{1}{21}$	2	$1\frac{20}{21}$	$1\frac{19}{21}$	$1\frac{18}{21}$	$1\frac{17}{21}$	$1\frac{16}{21}$	$1\frac{15}{21}$	$1\frac{14}{21}$	$1\frac{13}{21}$	$1\frac{12}{21}$	$1\frac{11}{21}$	$1\frac{10}{21}$	$\frac{1}{21}$
1	$4\frac{6}{11}$	$4\frac{5}{11}$	$4\frac{4}{11}$	$4\frac{3}{11}$	$4\frac{2}{11}$	$4\frac{1}{11}$	4	$3\frac{10}{11}$	$3\frac{9}{11}$	$3\frac{8}{11}$	$3\frac{7}{11}$	$3\frac{6}{11}$	$3\frac{5}{11}$	$3\frac{4}{11}$	$3\frac{3}{11}$	$3\frac{2}{11}$	3	2	$2\frac{10}{11}$	$2\frac{9}{11}$	$\frac{1}{11}$
$1\frac{1}{2}$	$6\frac{12}{23}$	$6\frac{9}{23}$	$6\frac{6}{23}$	$6\frac{3}{23}$	6	$5\frac{20}{23}$	$5\frac{17}{23}$	$5\frac{14}{23}$	$5\frac{11}{23}$	$5\frac{8}{23}$	$5\frac{5}{23}$	$5\frac{2}{23}$	$4\frac{22}{23}$	$4\frac{19}{23}$	$4\frac{16}{23}$	$4\frac{13}{23}$	$4\frac{10}{23}$	$4\frac{7}{23}$	$4\frac{4}{23}$	$4\frac{1}{23}$	$\frac{1}{23}$
2	$8\frac{4}{12}$	$8\frac{2}{12}$	8	$7\frac{10}{12}$	$7\frac{8}{12}$	$7\frac{6}{12}$	$7\frac{4}{12}$	$7\frac{2}{12}$	7	$6\frac{10}{12}$	$6\frac{8}{12}$	$6\frac{6}{12}$	$6\frac{4}{12}$	$6\frac{2}{12}$	6	$5\frac{10}{12}$	$5\frac{8}{12}$	$5\frac{6}{12}$	$5\frac{4}{12}$	$5\frac{2}{12}$	$\frac{1}{12}$
$2\frac{1}{2}$	10	$9\frac{20}{25}$	$9\frac{15}{25}$	$9\frac{10}{25}$	$9\frac{5}{25}$	9	$8\frac{20}{25}$	$8\frac{15}{25}$	$8\frac{10}{25}$	$8\frac{5}{25}$	8	$7\frac{20}{25}$	$7\frac{15}{25}$	$7\frac{10}{25}$	$7\frac{5}{25}$	7	$6\frac{20}{25}$	$6\frac{15}{25}$	$6\frac{10}{25}$	$6\frac{5}{25}$	$\frac{1}{25}$
3	$11\frac{7}{13}$	$11\frac{4}{13}$	$11\frac{1}{13}$	$10\frac{10}{13}$	$10\frac{8}{13}$	$10\frac{5}{13}$	$10\frac{2}{13}$	$9\frac{12}{13}$	$9\frac{9}{13}$	$9\frac{6}{13}$	$9\frac{3}{13}$	9	$8\frac{10}{13}$	$8\frac{7}{13}$	$8\frac{4}{13}$	$8\frac{1}{13}$	$7\frac{11}{13}$	$7\frac{8}{13}$	$7\frac{5}{13}$	$7\frac{2}{13}$	$\frac{1}{13}$
$3\frac{1}{2}$	$12\frac{25}{27}$	$12\frac{19}{27}$	$12\frac{12}{27}$	$12\frac{5}{27}$	$11\frac{25}{27}$	$11\frac{18}{27}$	$11\frac{11}{27}$	$11\frac{4}{27}$	$10\frac{24}{27}$	$10\frac{17}{27}$	$10\frac{10}{27}$	$10\frac{3}{27}$	$9\frac{23}{27}$	$9\frac{16}{27}$	$9\frac{9}{27}$	$8\frac{27}{27}$	$8\frac{15}{27}$	$8\frac{8}{27}$	$8\frac{1}{27}$	$\frac{1}{27}$	$\frac{1}{27}$
4	$14\frac{4}{14}$	14	$13\frac{10}{14}$	$13\frac{6}{14}$	$13\frac{2}{14}$	$12\frac{12}{14}$	$12\frac{8}{14}$	$12\frac{4}{14}$	12	$11\frac{10}{14}$	$11\frac{6}{14}$	$11\frac{2}{14}$	$10\frac{12}{14}$	$10\frac{8}{14}$	$10\frac{4}{14}$	10	$9\frac{10}{14}$	$9\frac{6}{14}$	$9\frac{2}{14}$	$8\frac{12}{14}$	$\frac{1}{14}$
$4\frac{1}{2}$	$15\frac{15}{29}$	$15\frac{6}{29}$	$14\frac{26}{29}$	$14\frac{17}{29}$	$14\frac{8}{29}$	$13\frac{28}{29}$	$13\frac{19}{29}$	$13\frac{10}{29}$	$13\frac{1}{29}$	$12\frac{21}{29}$	$12\frac{12}{29}$	$12\frac{3}{29}$	$11\frac{23}{29}$	$11\frac{14}{29}$	$11\frac{5}{29}$	$10\frac{25}{29}$	$10\frac{16}{29}$	$10\frac{7}{29}$	$9\frac{27}{29}$	$9\frac{18}{29}$	$\frac{1}{29}$
5	$16\frac{10}{15}$	$16\frac{5}{15}$	16	$15\frac{10}{15}$	$15\frac{5}{15}$	15	$14\frac{10}{15}$	$14\frac{5}{15}$	14	$13\frac{10}{15}$	$13\frac{5}{15}$	13	$12\frac{10}{15}$	$12\frac{5}{15}$	12	$11\frac{10}{15}$	$11\frac{5}{15}$	11	$10\frac{10}{15}$	$10\frac{5}{15}$	$\frac{1}{15}$

FRACTION TO BE ADDED OR SUBTRACTED FOR EACH CENTIMETER OF DISTANCE MORE OR LESS.

C. Thurston Howard

of the tube box—and the position of the movable tube box is so adjusted that the shadow of the foreign body is centred in this square. The next thing is gently to move the screen itself until the shadow of the foreign body—or some definite part of it—disappears in the hole in the screen. That done, a small stylographic pen is passed straight through the hole and the skin so marked. You then have a mark on the skin under which—in that position of the body or limb—the foreign body must lie. The next thing to do is to displace the tube box 10 cm. The

effect of this is to alter the position of the shadow on the screen. The second pointer on the screen—the first having been placed opposite the centre of the hole—is then moved to point to the second position of the shadow. The distance between the pointers read off on the scale attached to the screen gives the distance of the displacement of the shadow.

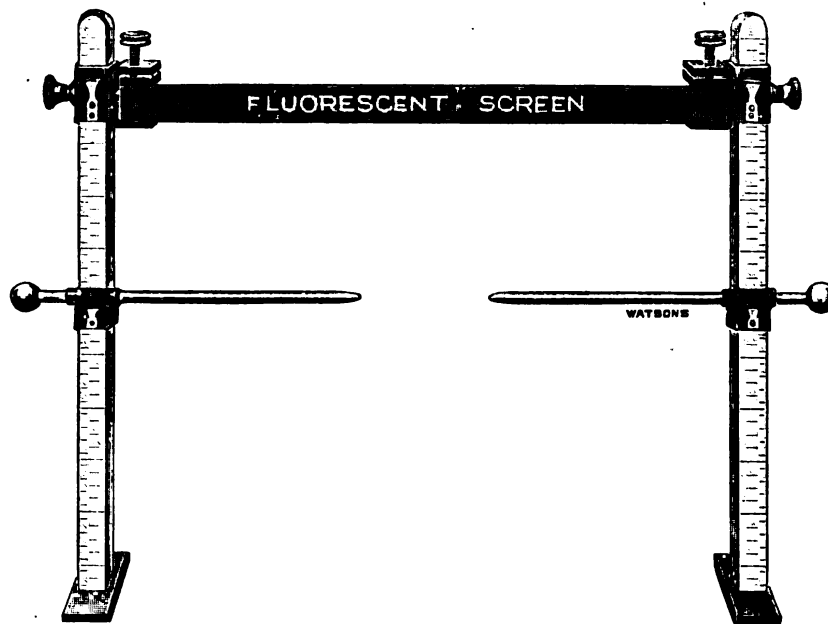
For practical purposes quarter centimetres are small enough for the localising of such things as bullets or pieces of shrapnel. The only other measurement required is the distance from the centre of the tube to the screen. Dr. Oram has invented a very simple method of getting at this at once. At Liverpool I use the Ironside Bruce couch; I do not believe there is a better couch for localising. Dr. Oram's idea is to take a centimetre tape measure of the spring variety and reverse the tape. This must be attached to the movable slide on the overhead bar of the couch; the distance of the anticathode to the top of the couch measured and the tape brought out till it reads at the top end this distance; then cut off so that the lower end touches the table. Fix a small weight on the lower end to just touch the table. When this is done by drawing out the tape to touch the surface of the screen, the distance of the anticathode to the screen is read off at the top end of the tape, whatever may be the position of the screen.

I have also devised a small arrangement which allows the 10-cm. displacement of the tube to be made easily and accurately. Attached to, or rather surrounding, one of the rails, under the couch on which the tube box runs, I have fitted a four-sided wooden box with no ends. This fits the rail accurately, but slides easily along it. On the top of this is a pointer, and this pointer is arranged parallel to the rail. When the tube box is in the first position—from which it must be moved 10 cm.—this carrier is pushed along until the end of the pointer touches the side of the box. The pointer is hinged so that it can be raised up out of the way, and this movement also fixes the slides to the rail. The pointer is also so long that when the tube box is moved up to the slider the movement is automatically 10 cm. Obviously a little arrangement of this kind allows of the movement of 10 cm. to be made from any position of the tube box and is very accurate. (Diagram II, *see* p. 23.)

There are many methods of determining the depths of the foreign body after the necessary measurements have been made on the screen. I have drawn up two tables of figures (*see* pp. 24 and 25) in which the top lines give the distances of tube to screen, and the figures on the left the distances of shadow displacement. The figure on the scale where these intersect is the distance in depth of the foreign body.

If one desires extra accuracy, one can control the observations by making a double exposure on the same plate, and then measure the displacement of the foreign body by the shadow on the plate. That, however, in the case of rifle bullets and large pieces of shell is scarcely ever necessary. During the last three months, since this method has been adopted, every foreign body has been found, and with the greatest ease; and no other method is now employed, except in special cases.

Dr. A. C. JORDAN: The method I am about to demonstrate is not intended to supplant any other, or to compete with others in accuracy;



Instrument for localisation of foreign bodies.

I simply show it as a convenient means of localisation which yields very accurate results. It is independent of the distance between the tube in the box and the fluorescent screen: it is likewise independent of photography. When Messrs. W. Watson and Sons made the instrument for me, I thought the idea was original with myself, but I discovered that my friend Mr. Shenton had described in the *Practitioner*, about seven years ago, a little instrument on the same principle which he had, even then, been using for eight years. My instrument consists (*see figure*) of a pair of uprights of square section, with clamp to hold the rim of the fluorescent screen, and base to rest on the couch. A horizontal needle has been made to slide along the upright, and this can be thrust in or withdrawn as required. The principle is to use the phenomenon of parallax

—usually the enemy of accurate localisation. If the needle be placed so that its shadow points to that of the foreign body, their shadows will only remain in a straight line in all positions of the tube if they are at the same level below the screen. If the shadow of the foreign body moves faster than that of the needle, we know that the foreign body lies deeper than the needle. The correct position of the needle can be found by trial in a few moments. The distance from the screen is then read off on the upright, which is engraved in eighths of an inch. In the case of small parts of the body—e.g., a limb—two needles can be used, on opposite sides of the limb. The needles must then be kept at the same level, and moved up or down together. To enable this to be done readily the instrument has been so constructed that each quarter inch is felt as the needle passes, and so one can work by touch. In some cases—e.g., the shoulder—only a single needle can be used. Any degree of accuracy may be attained by enlarging the luminous aperture, and increasing thereby the amplitude of the movements. Thus the chief advantages of the method are:—

- (1) Accuracy, convenience and speed, the required distance being simply read off on the scale.
- (2) Independence of the distance from tube to screen.
- (3) Independence of photography.

The limitations of the method are readily stated: The foreign body must be sufficiently large and opaque to be visible on the fluorescent screen with a moderate current such as cannot harm the patient or the tube.

Dr. HERNAMAN-JOHNSON: It is curious that several people engaged in military work have all hit upon the same idea for the localisation of foreign bodies on the screen. The reason is that large batches of wounded are coming into the base hospitals, and it is impossible to use the Mackenzie Davidson method because of the time it takes. One of the advantages of the screen method is that one gets the tube directly below the bullet, and so one has a vertical line to work to. By the Mackenzie Davidson method one cannot get a vertical line right away. By the method now described, by manœuvring the tube and closing down the diaphragm until it is vertically below the bullet, the patient's skin can be marked below as well as above. That is very important, because it enables the surgeon to have a double guide. The mark below is obtained by means of a little instrument which I call a "ring localiser." It is an opaque ring on an aluminium handle, and across the ring are cross-wires. This is manœuvred on top of the patient until it encircles the shadow of the bullet, and that part is marked. Then it is slipped

beneath the patient on the couch, and a mark made underneath, usually by slightly tilting the patient. But as some patients are very ill it becomes desirable to have a means which obviates tilting the patient. That is accomplished in the instrument sold by Messrs. Watson by a pneumatic device. In the case of a limb, or the head, or neck, one can turn the patient on to his side and get "cross-markings." In that way one obtains a vertical line indicated by two marks, and a horizontal line indicated by two other marks. In the limbs in most cases this is all that is necessary. It is important to remember that when the surgeon begins to operate he often destroys the vertical relationships, but if, prior to the operation, lines 5 in. or 6 in. long are drawn at right angles to each other through the original dot, the position of the latter can be recovered at any time, as the "sagging" of the tissues does not extend to the extremities of the lines. The skin having also been marked vertically below the bullet, knowledge of the line on which the foreign body lies need never be lost. In the case of the pelvis, hip-joint, or abdomen, where a horizontal line cannot be obtained, a measurement of depth in inches must be given to the surgeon. I exhibit a wall diagram of a scale I use in the Cambridge Hospital at Aldershot. It has been designed independently of that which Dr. Barclay has just demonstrated. In use one has to add to the distance between anticathode and couch top the thickness of the part of the patient being examined. With regard to ascertaining the thickness of the patient, I make use of the compressor attached to the horizontal arm of an Ironside Bruce couch. This can be let down until it touches the patient's skin, and subsequently the distance from the compressor disk to the couch top is measured.

Sir JAMES MACKENZIE DAVIDSON, in reply to the President's invitation: I do not think I have much to say, as my work is fairly well known to members of the Section. But what interests me specially is to find that since the terrible war came on the scene, the subject of localisation, which fell somewhat into the background, has come forward again in a very prominent way. It has interested me much to see the various methods which have been shown for quick localisation, and a rapid method is, of course, essential where such a large number of wounded are arriving. The method I had the privilege of introducing many years ago was based upon co-ordinate geometry; it is supposed by many to be very difficult of application, but with some care and trouble it is not more difficult than learning refraction, or anything else which demands the attention of the student.

All the remarks about X-rays are centred upon methods of finding the bullet. But there are more factors in the case than that, because some of the injuries are very complex. For the latter I put in a plea for the antiquated stereoscope. Those who have seen the stereoscopic photographs must realise the enormous amount of information obtained from them, not only with regard to the bullet, but also as to the damage which it has done, which is sometimes more important than getting at the bullet itself. The various methods demonstrated are good; it is something like fashion. The man who invents a method of simple triangulation naturally thinks it is the best. I have a method myself for quickly arriving at the depth of the bullet. After once getting the central ray, the determination of the depth of the bullet is a simple matter. Captain Thurstan Holland's and Dr. Hampson's methods are excellent. But in many instances one requires to know more than the depth of the bullet, such, for instance, as its relation to other parts, and the best point from which to approach it. In the more difficult cases I cling to the old cross-thread means, which can be rendered very rapid. One requires a piece of gelatine, with cross-wires, and it is so manipulated that the shadow of the bullet comes over the cross-wires and then the tube is displaced and a tracing made. By putting that on the localiser, one gets the information straight away, without calculations. And if one wishes to see its relationship to the bones, that can be ascertained straight away too. There is an instrument which has not come into general use, because it is too complex; but if there should be a war in the far future—which I hope there will not be—it will be found there is available a stereoscopic screen in which with the patient standing up the position of the foreign body will be seen in absolute relief. Then the surgeon could know at once whether it was safe to approach it.

It is interesting to me to see so many enthusiastic workers evolving plans which give such good results; they do their part very well. I only wish surgeons would take a little more trouble in acting wisely on the information which the radiographer supplies to them. In a difficult case I advise the man who does the localising to be at the elbow of the good-natured surgeon who will listen to his instructions.

Mr. C. R. C. LYSTER: Dr. Hernaman-Johnson's method is exceedingly interesting, more interesting to me than to others, because I described that method in 1903 in the *Archives of the Middlesex Hospital*,¹ and I have used it for many years.

¹ *Arch. of Middlesex Hosp.*, 1903, i, pp. 99, 100.

Major FRED. BAILEY: In practically all the various methods of localisation by means of the X-rays, the presence of a truly *vertical ray* passing through the *centre* of the diaphragm is essential. In examining half-a-dozen installations lately, in no single one was the vertical ray found to be accurately centred, nor had the makers so arranged the tube-holder that it was possible to centre accurately. The variability in size, &c., of the tubes used (even if the tube-holder can be moved in any possible direction) always means readjustment for every change of tube. I find that the simplest method of overcoming the difficulty is to have a movable diaphragm, which I place so that its centre coincides with the vertical ray; it is simply a piece of lead with a $\frac{1}{2}$ -in. diameter hole in it. It is most important in localisation to use an instrument of precision. To find the vertical ray I use the small instrument now exhibited. This is a lead cylinder, 4 in. high, with a hole $\frac{1}{8}$ in. in diameter drilled through it; the surface of the ends is ground exactly at right angles to the drilled hole; the cylinder is fixed on a base having three micrometer screws at the bottom, which provide for accurate adjustment. On the top is placed, at first, a small spirit level; the cylinder is adjusted by the screws until the spirit level shows that the top is absolutely horizontal, because the level of a frequently used X-ray table varies considerably. The drilled hole is now perfectly vertical, and the position of a vertical ray can be correctly found by the fluorescent screen, and the centre of the diaphragm made to coincide with it. I illustrate its use by a case in which a shrapnel bullet was lying in the psoas muscle anterior to the ilium and just outside the sacro-iliac synchondrosis. The question arose as to whether it would best be attacked from the front or behind; the surgeon recognised it would be a matter of some difficulty. The patient had originally been discharged with the bullet still in situ, but he returned, in a few weeks, saying that he wanted the bullet removed, as it gave him pain and he could not do his ordinary duty: so, eventually, the surgeon thought he would attempt its removal from behind. The depth was estimated to be $3\frac{1}{2}$ in. from the skin. The patient was placed on the X-ray table and anæsthetised, the bullet was localised as vertically below a certain spot; this surface spot was marked with tincture of iodine as the man had been prepared for operation. The surgeon now passed a needle vertically down through the centre of the spot until it touched the ilium, hammered it into the bone, cut off the piece outside the skin and sent the man to the operating theatre. There he made his incision alongside the needle down to the bone, cut out the piece of bone with

the needle sticking into it, passed his finger into the muscle on the other side of the hole and removed the bullet. At the 2nd Eastern General Hospital at Brighton, since mobilisation, I have examined about 1,200 cases; I do practically all my work with the tube below the couch, using a Schall's tube-stand, which allows the X-rays to be directed upward from below or downward from above the patient. It also can be directed in any direction sideways and at any angle; this is of constant use in obtaining lateral views of limbs, &c., where the patient cannot be moved on to his side. By masking with lead I am able to take the antero-posterior and lateral views on the two halves of a 12 by 10-in. plate, and, if the exposure is accurate, the two views develop out together, and afterwards they always remain side by side for the surgeon to see at the same time.

Dr. HOWARD HUMPHRIS: I wish to comment on the remark of Sir James Mackenzie Davidson, that it would be a good thing if the radiographer could stand in the theatre at the side of the good-natured surgeon. That is a thing "most devoutly to be wished." There are several things to be desired; I will not indicate in which directions. I admit that in many cases the desirable thing is surgically impossible, though in four cases out of five it is possible. The radiographer, for instance, says a foreign body is 4 cm. below a given cross, and asks the surgeon to run a needle down to that cross. My experience is that if the surgeon does this, he will find the foreign body. But if the surgeon make, as the majority do, an incision immediately, he loses the value of the localisation marks, pushes his rubber-covered finger into the incision, and in so doing shifts the foreign body to a new site, and blames the radiographer for a mistaken localisation.

Dr. METCALFE: I do not propose to describe any new method; I pin my faith to that described by Sir Mackenzie Davidson. I have not had the large number of localisation cases some members have had, but I think a method in which time is needed, and stereoscopic plates are used, is necessarily more accurate than any other method could be. In some cases, in too rapid localisation, a bullet is found through the size of the surgeon's incision, as he makes an ample cut through which it can usually be extracted, even if the position is not absolutely accurate. But such a rapid method would be out of the question for small pellets in the eye, for instance. I desire to mention something which I believe would apply to all these methods; it is in

regard to the measurement of the distance of the anticathode of the tube to the top of the screen over the couch. It is really so absurdly simple that I apologise for bringing it forward. I obtain a long steel rod, which I push down through the top of the couch, if it be a canvas-topped one; if it be a couch with a wooden top, one or two gimlet-holes must be made through which to pass it. This rod can be pushed through the opening in the diaphragm to the periphery of the tube. The rod is 60 cm. long, and there is a scale attached to it which can be moved up and down. I push it down to the level of the screen, say 15 cm., and deduct 15 from 60, giving 45, then, by adding the half-diameter of the tube, I have the distance at once. Callipers and other instruments for such measurements are often awkward; this instrument gives no break in continuity, and I regard it as useful.

Dr. N. S. FINZI: I wish to urge the necessity, in all cases, of a very thorough screen examination. I am aware that in some quarters there is a tendency to deprecate this, on account of a supposed danger to the operator; but I consider that in these cases of bullet and shrapnel wounds it is extremely necessary. I have had several instances in which the entry wound was very far from the site at which the bullet had lodged. One of the most remarkable is that of a man who had chest symptoms. The bullet entered behind the right scapula, and I was asked to examine the man's chest. There were present signs of effusion of blood in the chest, but no bullet was visible. Eventually, by thoroughly screening the patient all over, a shrapnel bullet was found in the left iliac region. There are other cases in which the bullet has been found far from the site of entry, and in which the symptoms have not indicated where it is. I had one case in which the bullet was either in the heart muscle or was attached to that organ, and in that case the bullet entered just in front of the head of the left humerus. If one simply takes a skiagram of the part, one cannot hope to localise a bullet which has travelled some distance from its point of entry. I am glad to see that most of the methods brought forward at this meeting necessitate a screen examination, because they are mostly screen-localisation methods.

With regard to the various methods of localisation, I think it would be a mistake for radiographers to confine themselves to any one method. For instance, in the case of a limb, I consider the easiest method, at all events in the lower part, is that of crossed planes as described by Dr. Hernaman-Johnson and by Mr. Lyster. The parallax method is

also good for a limb, though I doubt if it has the accuracy of the others, and a permanent record cannot be made. When there are fragments in the muscles of the back, the triangulation method must of necessity be used; they cannot be seen sufficiently by the application of the parallax method, nor by the Hernaman-Johnson method. The use of the Mackenzie Davidson method for localising fragments has the great advantage that it enables one to localise the bullet in relation to other parts, such as bony points. By Dr. Hampson's method one can localise the depth of the bullet, but cannot establish the lateral relations of the fragments to other points. Recently a patient was brought to me with a small fragment of shrapnel in the muscles at the side of the third and fourth lumbar vertebræ, and I was able to localise this in relation to the transverse processes. In the previous attempt, in which I localised merely the depth, the surgeon did not place the patient in exactly the same position as he occupied when the fragment was localised, and consequently the fragment was not found, but when its relation to the transverse processes was determined it was easily recovered. Dr. Metcalfe has described a method of finding the distance of the anti-cathode from the top of the table. If the tube happens to be hot, however, and the cold wire were to be put on to the surface of it, the result might be disastrous. I suggest a very accurate method of localising a focal point—namely, by the Mackenzie Davidson localiser. If one puts a needle on the couch, and puts the screen a definite distance above this, for instance 10 cm., and the screen is then displaced a known distance, the depth of the foreign body will be known; it is only necessary to adjust on the bar of the localiser, so that the threads cross at that depth, and then the distance of the focal point can be read off. That method of using the localiser is not generally employed—namely, the localisation of the focal point of the tube.

The PRESIDENT (Dr. W. Ironside Bruce): The subject is so important that I consider it desirable that it should be adjourned to the next meeting of the Section, on February 19.

(Adjourned to February 19.)

Electro-Therapeutical Section.

February 19, 1915.

Dr. W. IRNSIDE BRUCE, President of the Section, in the Chair.

Discussion on the Electrical Treatment of Wounds, Sinuses, Frost-bite, and Sprains, considered more particularly in relation to the present War.

DR. KNOWSLEY SIBLEY said: It is recognised that when wounds do not heal it is because of the presence of pathogenic organisms of various kinds, and that under the most favourable circumstances antiseptics can only deal with these when they can be brought into actual contact, and made to penetrate into the deeper recesses of the wound. This can be done most efficiently by the process of ionisation. By this means not only those organisms living in the pus covering the granulations will be attacked but also those thriving beneath the pus, and in the necrotic tissues themselves, will be destroyed.

The difficulty which arises in the surgical treatment of wounds, especially deep wounds, is to be able to apply the antiseptic to the bottom of the wound, and so destroy the mischievous organisms. After a time many of these organisms will not only be living in the free pus discharging from the wound, but also be thriving in the necrotic tissues deep down in the wound. It is only possible for antiseptics as applied in ordinary surgical dressings to get at a small proportion of the pathogenic organisms. It has long been recognised that the process of ionisation is excellent for the healing up of chronic sinuses, and it should be equally efficacious if applied to recent ones. The treatment is, moreover, painless. The limb, such as a hand, forearm or arm, foot, leg, or even the lower end of the thigh, is placed in a bath, filled with warm water containing the drug to be applied dissolved in it. The

active electrode is placed in this, and the opposite hand is immersed in a basin or beaker containing slightly saline water, into which the inert electrode is placed. The constant current is gradually turned on until some 10, 20, or more milliamperes are delivered, according to the requirements of the case, and the process is continued for from twenty or thirty minutes to much longer periods, the treatments being repeated as frequently as the individual indications may dictate.

It follows that in dealing with a gaping wound the water with a drug or antiseptic dissolved in it will penetrate into all parts which are accessible to the exterior. In the case of a penetrating wound communicating with the surface only by a narrow sinus, it will be necessary to insert the metal electrode covered with lint, saturated with the solution, into the bottom of this. Thus, wounds of the limbs can be conveniently and comfortably dealt with; those about the head and neck are more difficult to adapt, but it should often be possible to arrange even for these. It is also quite simple to treat by ionisation practically the whole body (with the exception of the face) at the same time. For this I have arranged a full bath, into which the patient gets, the hands and forearms being placed in a wooden trough, suspended over the top end of the bath, or one or both arms are placed in separate rubber bags filled with water. The drug to be administered is dissolved in the water in the bath, in which is placed the active electrode, while the inactive electrode is put into the trough or bags in which the arms are placed, and by this means a circulating current is set up.

Of the various drugs which may be used, it will probably be found that the most generally useful are sulphate or chloride of zinc, a 1 or 2 per cent. solution of which has very cleansing and healing properties, and is especially beneficial for the healing up of chronic wounds or sinuses.

The same principle of treatment should be efficacious not only for the purpose of the rapid healing up of chronic, comparatively healthy wounds, but also in those in which active suppuration, or even gangrene, has appeared. The best and most efficacious treatment for the scars left after the healing of wounds is by ionisation with sodium chloride and other solutions, according to individual circumstances. This procedure, especially if combined with hyperæmia induced by suction cups, often does much to improve the cosmetic appearance of cicatrices.

The constant current of electricity has long been recognised as an excellent treatment for frost-bite. Ionisation with various preparations

will restore vitality in the slighter cases, and assist in the removal of the sloughs in the severe ones, producing a more rapid healing of the ulcerative surfaces in those where the necrotic processes have extended to some depth.

Dr. TURRELL said: We have listened at our recent meetings with much interest, not unmixed with bewilderment, to the numerous and ingenious methods which have recently been devised by our allies, the radiologists, for the accurate localisation of foreign bodies. It is now our duty as electro-therapists to show what we can contribute towards the relief of the suffering entailed by this terrible war, to show how by electrical methods we can render those incapacitated by stiff joints or other lesions fit to take part in the defence of their country. It is the duty of those of us who have the privilege to be attached to a military hospital to consider by what electrical means they can most speedily and effectively ensure the return to the front of those sick or wounded who come within the scope of electrical remedies.

Let us first discuss those cases which, except for the aid of electro-therapy, would be rejected as unfit for military service. There must be a large number of old injuries, sprains, strains, nerve injuries, swollen joints, &c., which fall within this category, as an example let me give the following case:—

G. C., an Oxford undergraduate, consulted me on January 7, 1914, for chronic effusion into both his knee-joints. He gave a history of two years' duration, and stated that he had been treated by all conceivable methods except electricity. During the preceding long vacation he had spent some time in a London hospital under a well-known surgeon, who had incised one of his knee-joints and found the synovial fluid perfectly sterile. There was no history of syphilis, rheumatism, or other disease likely to exercise a causal influence. Drugs and rest seemed to have little or no influence on the condition. He had had to give up all forms of sport and exercise, and the whole of the preceding term he had been unable to walk and had been wheeled out in a bath-chair. On his first visit he hobbled into my room with the aid of sticks with splints applied to both his knees. On examination his knee-joints were both found to be distended with fluid, but not tensely distended—a general flaccidity and wasting of the muscles was one of the most noticeable features. The fluid was not confined to the joint cavities but extended a considerable distance up the thighs, evidently communicating with the subcruræus bursæ. This extension was very

evident when the patient was subsequently treated by the Morton wave current, as the fluid could then be seen pulsating half-way up the thigh with the muscular contractions excited by the current. With such a wide area of distribution the fluid, though present in large quantity, only caused a measurement over the patella of 14 in. It occurred to me that the treatment should be selected not only with a view to causing the absorption of the fluid, but also with the view to preventing its reaccumulation by increasing the tone or intrasynovial pressure by developing the extensor muscles of the thigh. With this object in view the splints were at once discarded and the patient was treated daily by the Morton wave current, and at the outset electrically provoked exercises were applied to the muscles of the thighs. Subsequently, to hasten the dispersal of the fluid, the Morton wave current was preceded, and I think considerably assisted, by the preliminary application either of ionisation with iodine or of diathermy. In four days a decided improvement had taken place, the fluid was reduced in amount, and the patient could get about better. After a week's treatment he was able to cycle for 6 miles. The fluid had nearly gone from the right knee, but there was still a large amount in the left. On February 2 no fluid could be detected in either joint after the end of the treatment. On February 4, less than three weeks after the treatment had been commenced, the patient had no fluid in either joint, could run up and down stairs, and could bicycle up hill. The treatment was then discontinued. On May 14 patient called on me in order to get a certificate explaining the circumstances, to enable him to rejoin a golf club which he had resigned in the autumn under the impression that he would never be able to play again. There was then no fluid in either joint and the muscles were well developed. He had been playing cricket in the rain on the preceding day. He told me that, during the Easter vacation, he had had an attack of measles followed by some rheumatism, and at that time there was again a little fluid in his knee-joints which soon cleared up, and had not since returned. At the outbreak of war he applied for a commission and was passed as medically fit. A few days ago I heard that he was in training at Aldershot—marching, digging trenches, &c.—and had had no further trouble with his joints.

Among the various conditions which we are called upon to treat at the base hospitals at the present time, none is exciting more attention than the treatment of frost-bite. When the therapeutics of this affection were first discussed at Oxford, I was chaffingly asked

by one of my colleagues if I would not like to treat it, as well as everything else, by electricity. I at once replied that I should certainly treat my cases electrically, as it appeared to be the most rational method of dealing with the symptoms and pathological conditions which occur. First of all there is the pain. Now, which is the more rational method—to relieve by reducing the stasis by the penetrating warmth and vaso-dilator effects of diathermy, and to relieve the stasis and swelling by the static breeze? Or to keep the pain in subjection, without removing the cause, by repeated doses of morphia, or to attempt to relieve the pain by lead and opium applications, decreasing instead of increasing active hyperæmia and reparative processes, or again, by the application of hot fomentations, running the risk of converting a dry into a moist and spreading gangrene?

It is, I am sure, unnecessary to-night to labour such points. The question for discussion will rather be, by which electrical modality we can most speedily and most effectively give relief. When the pain is really acute, I first try diathermy, and it hardly ever fails to give, at any rate, temporary benefit. When the pain is not of a severe character one application is frequently sufficient; the patient next day will probably say that he has lost all his pain, that he can move his toes better, and that his feet are less tender on walking. Possibly a desire for sick furlough hastens the recovery of the power of walking in this class of case.

Where the pain is severe, I usually find that immediate relief occurs after the first treatment, and lasts for four or five hours, the pain coming on again at night and disturbing the patient's sleep. After the second day's treatment a good night's rest is usually secured, and with a continuance of the treatment all pain ceases in a few days. Occasionally one meets a case where little or no relief follows the application of diathermy; but such cases when treated by the static breeze usually experience marked benefit. I have endeavoured to ascertain whether these cases present any symptoms or signs differentiating them from the diathermy class. So far as my experience goes, the cases specially suitable for the static breeze are those in which the pain comes on some time after the frost-bite, and those presenting signs of inflammation and swelling. The static breeze is specially indicated when the patient is in an exhausted condition and the constitutional effect of the static bath is desired.

In applying diathermy 10 by 5 c.m. electrodes are placed one on the dorsal and one on the plantar surface of the foot on the proximal side

of the base of the toes. Under the electrodes is placed a pad, formed of three layers of Turkish towelling, soaked in saline solution, the whole being secured in position by a Martin's rubber bandage. A current of about 0.9 ampere is passed for nine minutes or until the patient complains that the heat is unpleasant. The pads must not be placed over the toes themselves or unequal application and blistering of the toe-joints will result. This use of pads is the German method of applying the current. The French apply the electrodes direct to the skin and ask what is the use of obtaining a mustard-plaster effect when administering diathermy. The Americans advocate the use of kaolin pads. Where the application is made over bony prominences the use of pads is essential in order to get the requisite even application. I never allow my nurses to give diathermy without pads, but I often when personally administering the current remove the pads after a minute's application and apply the bare electrodes direct to the skin when treating soft areas. In this way one can get a larger amount of current out of the apparatus. With the pads well soaked with cool salt and water no mustard-plaster effect is produced, the current is better borne, and I have never seen the steam effects of which the Americans complain. By the addition of the salt the electrical resistance of the pads is so diminished that they do not heat to any harmful extent. Sometimes, however, one wishes to obtain a superficial and not a deep effect. This may be accomplished by using pads soaked in water with no salt; the electrical resistance of the pads is thus increased and increase in the superficial heating is obtained. But whatever pads you use do not use modelling clay, as I was once recommended to do. This question of the use of pads is of the greatest importance in the application of diathermy. Where the skin is broken in frost-bite or where there are large blebs the static breeze appears to me to be the best treatment. Cases of frost-bite with small blebs or with loss of sensation in the feet I have found do best with the high-frequency vacuum tube. Sometimes one application will restore sensation, and its effect appears to be more stimulating than the static breeze. Small blebs dry up very quickly with this treatment. Where the skin is broken or where the blebs are large the static breeze with the patient negatively charged is the treatment of choice. Stasis is thus relieved, the blue violet rays and the ozone contribute to the maintenance of asepsis, induration and swelling diminish, an active hyperæmia ensues, and assists in the early separation of the necrosed tissue.

At the 3rd Southern General Hospital, Oxford, forty-eight cases of

frost-bite have already been electrically treated with most satisfactory results. I do not wish to occupy your time by reading notes of uniformly successful treatments, but I should like to give you particulars in some detail of an extremely interesting case of frost-bite, the treatment of which certainly cannot be regarded as having been uniformly successful. The chief interest of this case is perhaps dermatological rather than electro-therapeutical, but in view of its extreme rarity and the fact that all electro-therapists should be dermatologists, and that all dermatologists will soon have to become electro-therapists, I trust you will pardon me for occupying your time with the following notes. I referred as follows to the early history of this case in some notes which recently appeared in the *Lancet* (January 30, 1915, p. 229) :—

“The worst case of frost-bite which has been admitted to the hospital has been under treatment for about six weeks by this method (static breeze). On admission the toes were hard, dry, and withered, the sole of the foot was covered by a large black bleb, and on the dorsum of the foot a line of demarcation was already appearing about 1 in. from the base of the toes. The static breeze has been applied daily, and pain, whenever it has occurred, has been relieved by the treatment. The toes are now separating at the metatarso-phalangeal articulation. The granulations are very healthy in appearance, the wound has kept perfectly aseptic, and only on one occasion has the temperature risen to 99° F. The patient's general health has much improved. Hardly had these notes been written before a gradual change began to occur in the patient's general condition: he went off his food, became listless, and developed several spots which were regarded as being due to acne; these were considered to be caused by lack of fresh air and exercise. Motor drives were accordingly arranged for. On February 5 the following note was made: ‘With the aid of a pair of scissors the dead toes were painlessly separated this morning. The patient is covered with an irritating rash. The application of boracic powder is to be discontinued.’ Boracic powder had been very freely applied to the granulations in order to keep them as dry as possible between the treatments. Realising the amount of powder which had been applied to the very active granulations, I formed the opinion that the eruption was due to the absorption of boron, and that the case was one of boracic acid poisoning. The rash commencing as a few scattered papules soon developed into a seborrhoide type distributed all over the body, with a psoriasis-like appearance on the elbows. The scalp became very

scurfy. Itching and irritation were only troublesome at the onset. On the second or third day minute papules appeared on the interdigital clefts of the fingers, and the Sister of the ward, mistaking them for scabies burrows, applied sulphur ointment. On the following day the fingers were studded with sago-like nodules, especially thick at the bases of the nails; these nodules subsequently became confluent, forming blebs, clear at first and then pustular. The face and eyelids became swollen and stiff, difficulty was experienced in opening the mouth. The sight became dim. The pulse was very weak and frequent—132, with temperature 100° F. The tongue was swollen, inflamed, and fissured. The patient's condition was very serious, and only liquid nourishment could be taken. The skin is now drying up and is coming off in flakes and scales. The pulse-rate is subsiding and the general health is steadily improving. The treatment has consisted in the administration of alkalies with a view to the elimination of the boron as the soluble sodium borate. Stimulants have been given to maintain the strength.

"On February 9 Sir William Osler dictated the following note: 'Rash on hands is very remarkable, begins as small pin-point papules, some with little, some with no areolæ, quite small ones are whitish and translucent, they occur singly or in groups, more on the palms than on the backs, the whole palmar surfaces are studded with raised firm bodies looking like the rash in dysidrosis. On the trunk it is a papular erythematous rash capped with dry brownish scales.'

"Dr. Gunn, the University Reader in Pharmacology, who kindly examined the urine for boron, wrote the following note: 'Patient shows the following symptoms characteristic of the condition diagnosed, in addition to skin lesions and acceleration of pulse: Muscular weakness and marked depression. He says that he felt tired and miserable since the rash came out; sleeplessness, headache (occasional), dryness of throat, and difficulty of swallowing. He says that he feels as if his throat were closing up. Blurring of vision, injection of conjunctivæ, œdema of eyelids, facial œdema sometimes the only symptom of mild poisoning; dryness of the lips. Urine: No albumin, no blood; 15 c.c. evaporated, and examined, gave definite but slight traces of boron (by flame test and HgCl_2).'"

From the ophthalmic report of Captain Adams it would appear that the dimness of vision was due to a filmy secretion over the cornea. The disks and fundi, as far as could be seen, were normal.

The area of absorbing surface in this case was about 125 sq. cm. During the static treatment the patient was negatively charged; the

toxæmia cannot therefore in any way have been due to ionisation, but probably the activity and absorbing power of the granulations were increased by the frequent application of the static breeze.

Sprains of joints and muscles arising from falling down "Jack Johnson" holes and other causes yield as a rule very readily to the Morton wave current of the static machine. In the case of stiff joints, galvanism followed by the Morton wave current seems to give the best results. By the use of these modalities the patient's return to the fighting line can undoubtedly be much hastened.

Some of the most interesting cases from the electro-therapeutic point of view are the immediate and remote effects resulting from nerve injury, and it has wisely been decided to devote a special evening to their discussion.

Before concluding I should like to draw attention to the electrical treatment of the pain and disability resulting from peritoneal adhesions. It is not to be expected that electrical methods will have any appreciable influence on firmly organised adhesions. These, however, are not the cases which give rise to much pain; it is in those cases in which the peritoneal surfaces are glued less firmly together by the exuded lymph, and where movement and friction takes place between the roughened surfaces, that most pain is experienced. In private practice I have had two cases where very marked relief has followed the application of diathermy in this condition. In one a laparotomy had revealed the presence of numerous adhesions from an old appendicitis; there was great pain on movement. The patient was sufficiently relieved after a course of diathermy to enable him to return to his work. I have since lost sight of this case. The other was the case of a lady who for eight years had suffered such pain on any movement that she had become almost a chronic invalid. She was unable to cycle, walk, or stoop without producing acute pain. After a rather prolonged course of diathermy she was completely relieved, and has been able to walk, to cycle, and to do gardening without any pain for the six months which have elapsed since the treatment was discontinued.

I find that Nagelschmidt in his book on diathermy refers as follows to the treatment of such cases: "The favourable effect of diathermy upon adhesions calls for special notice. Just as marked relief from pain is produced after a few treatments in cases of pleural adhesions, scars on skin, traumatic and post-inflammatory inflammation of joints, so in cases with intraperitoneal bands a similar effect is observed. In fact,

sometimes after one treatment a complete cessation of all discomfort occurs. Observation of the effect of diathermy on scars in exposed position—e.g., scars on skin (lupus, burns, &c.), post-operative scars on periosteum and tendons, which become softer and more supple—throws light upon the ætiological rationale of this treatment. The softening effects of diathermy and the production of mechanical mobilisation may also be studied clearly in abnormal positions of the uterus due to traction by scars or cicatrization. In refractory cases a method of treatment to be recommended is the combination of massage with diathermy, even when massage alone has been used before for months without effect."

The following is a typical example of the effect of diathermy on this class of case: November 29, 1914: Private J. L., was admitted to the 3rd Southern General Hospital, under the care of Captain Duigan, complaining of pain in the region of a scar in the right iliac region, the seat of a former operation for appendicitis.

History: In 1911 the appendix was removed at the Alexandra Hospital, Cosham, and three months later the wound was re-opened, and drained for an abscess, a tube also being placed in the left flank. Two months later he was operated on for right inguinal hernia. Three years later in the West Indies he underwent a fourth operation, the appendix region being opened for painful adhesions. He was free from pain after this.

Present illness: Three weeks ago, whilst lifting a sandbag in the trenches, he felt sudden pain in the lower abdomen, just internal to appendix operation scar. This prevented him from walking. He was reported sick and was invalided to the base hospital at Boulogne for ten days. Since arrival in England he has been easier, and lying quiet in bed he has no pain. Patient had pain in walking and could not hold himself upright. On December 16 the patient was sent to the Radcliffe Infirmary for electrical treatment. The following day Captain Duigan made the following note: "December 17: Is having electrical treatment daily; immediate result is more pain, and then a good deal easier. December 24: Improving under electrical treatment; walks better, less pain." Patient continued to improve, and after twenty applications of diathermy he could walk perfectly erect without pain. He was then discharged to a convalescent home. The Sister of the ward tells me that she saw him on his return, and that he was free from pain and walking quite erect.

Dr. CHARLES RUSS: It gives me pleasure to make a contribution to the study of the treatment of suppuration by active current. I believe that with a fuller recognition of the factors at work in suppuration, the electric current will be found a very potent remedy. I first approached the subject at the bacteriological laboratory during 1907-08-09, and I believe there has lately been a realisation of the significance of bacteria in suppuration. On the one hand, there are the bacteria associated with their toxins—of the poisonous nature of the latter members do not need to be reminded. Volume for volume, the strongest ordinary chemical antiseptics are poor in comparison. On the other hand, there is the patient's resistance, and that consists in changes in both volume and composition of the blood supply, and in particular in the emigration of polynuclear cells. It is only when the latter have migrated to the site of a suppurating lesion that they are known as pus cells. During the last three or four years I have been studying particularly the effects of electrical currents applied in a special way, and I hope to give reason for my belief that there are factors in electrolysis directly antagonistic to the noxious factors in suppuration and other factors which assist the patient's resistance. The types of suppuration about which I wish to speak—and they are the types I have treated—are cases of ordinary chronic ulcer, such as varicose ulcer, acute septic wounds (usually due to trauma), and infected mucous membranes; in all these cases the factors I have mentioned operate. In 1909 I had the privilege of reading before the Royal Society a paper on some purely laboratory experiments and observations I made on the movements of bacteria in fluids—i.e., during electrolysis. The type of organisms I studied were the disease-producing ones: *Staphylococcus pyogenes aureus*—the commonest cause of sepsis—colon bacilli, typhoid bacilli, and other leading groups. If a twenty-four hours' pure culture of *Staphylococcus aureus* on agar be put into a tube with 2 per cent. sodium chloride and emulsified, the organisms being alive, and the current be then passed through by means of submerged electrodes, it will be found that after a certain period the staphylococcus has passed over until those microbes are completely aggregated at one of the electrodes: in the case under consideration it will be the anode. All the experimental work, which I did on the bench before approaching a patient pointed to this emigration of bacteria, no matter whether the bacilli I worked with were dead or alive. It is probably due to the affinity between the moving ion and the bacterial envelope. Nearly all organisms in sodium chloride will go to the positive electrode. It is important to note, that

if one withdraws a portion of the accretion after twenty minutes, a large number of the bacteria will be found to be dead, and this shows that the procedure is lethal to bacteria.

Two important facts emerge in the course of treating cases. The lethal effect can be directed against the bacteria in the focus of suppuration. The first case I treated was one of varicose ulcer, chosen because the lesion was easily visible: its varying size could be accurately measured, and the technique could be well adapted to the leg. By the time the ulcer was chronic I found the bacteria were usually mixed; some of the ulcers were 4 in. square. My object was to draw the bacteria out of the granulations. I fitted a glass vessel over the ulcer, and made it water-tight with plasticine. I then filled it with sodium chloride and submerged an electrode; in that way I did the same in the human subject as I had been doing in the case of the test-tube. Organisms left the granulations as the current flowed from the indifferent electrode. Thus, over the lesion I brought a suitable column of fluid to bear, and through that I arranged a circuit in such a direction that the bacteria would leave the lesion. I need not remind members of the perfect cellular contact which a conducting fluid makes with all the irregularities of a lesion. Sodium chloride is not looked upon as a powerful antiseptic, therefore the effect produced is not that of fluid antiseptis. I would like to mention an interesting control experiment which forcibly reminds me of the lethal effect. I wanted to prove whether the organisms were actually drawn out of the granulations, because, of course, no one could see them make their exit. In the U-tube experiment there could be no doubt about the mass movement of the organisms; but on the limb one cannot see it. I therefore, before treatment, put on clear saline and stirred it up so as to get an emulsion, and put $\frac{1}{4}$ c.c. of it on to an agar plate, and I intended to count the colonies. After the treatment I shook it up again to see if I had twice or thrice the number, the inference being that multiplication would be due to their having been drawn out. I obtained a quantity of colonies on the first plate—a thousand or so—while in the second I got nothing, this showing that they were all dead. All the ulcers which I treated in that way were healed.

My friend Mr. Lyster has treated a series of septic fingers, which are known as "casualty hands," the most severe half-dozen which the house surgeon could pick out for him. Pus was welling out from those terrible digits. The 2 per cent. sodium chloride was arranged over these lesions, and not one of them came to amputation, a result which often

happens in these cases. Mr. Lyster, at that stage, was bolder even than I was, and he showed great adaptability in applying a column to the suppurating surface of the eye, corneal ulcers and conjunctivitis; nothing but the 2 per cent. fluid was used. The ulcers treated were pale, indolent, and of the wash-leather type, thoroughly anæmic, but at the end of fifteen minutes from the current being passed the vessels were turgid and much congested, even to the point of oozing blood. That, of course, was in favour of the patient, for an effect equal to that of the Bier's bandage had been produced, the benefit of which was due to the enhanced blood supply, the improved plasma flow, and the increased phagocytosis. But the method I am describing could be used for parts of the body in which a bandage could not be applied.

I have seen the good effect demonstrated in a distressing condition which I have studied more than anything else—namely, cystitis. When I read my first paper, a surgeon in the room said, "Why don't you draw bacteria out of a man's bladder who has got cystitis, for there is a suppurating mucous membrane which is accessible to a column of fluid?" A column of fluid can be put in, an electrode can be let down inside a rubber catheter, and a belt carrying a metal core encircles the lower hip, and in that way one is enabled to apply the treatment to the whole suppurating and inflamed surface. I have taken old-standing cystitis cases, of years' duration, whose case-books show a monthly attendance at hospital, or perhaps fortnightly, and in which, in fact, all kinds of treatment have previously been applied. In all the behaviour has been the same—namely, a decline in pus formation and a great improvement in such symptoms as frequency of micturition and those which are due to the chronic absorption of coli toxin. After an extensive experience in urine analysis, I know that organisms in urine from cases of cystitis are seldom seen inside the pus cells. But after treating cases electrically in this way I have obtained some remarkable films showing polynuclear leucocytes literally stuffed with bacteria.

Another point is that in chronic suppuration I have seen colon bacilli undergoing morphological change. After treating certain cystitis cases, keeping at the same time an eye on the urine, I have found the bacilli becoming stringy, definitely longer, and changed in respect of their reaction to the standard Gram staining, which shows an alteration in the chemistry of the protoplasm. When the bacilli attain this increased length they no longer possess anything like the same virulence, and there is then no pus formation, or at all events very little. Pus disappears from the urine after this treatment, and

though I have watched cases for twelve months afterwards, it has not reappeared, and the organisms remaining are still elongated. I was curious to find out whether, by passing a weak current through a tube of bacilli, the bacilli could be elongated, and that did happen, though they were not so long as in the cases treated. I have also done a considerable amount of work in the study of gonorrhœa in the male, on the same principle.

I should like, in conclusion, to project on to the screen a couple of charts from very chronic cases of cystitis. Although they show only the frequency, there is a simultaneous improvement in the pus formation and toxic absorption, which shows that the method really overcomes the causal agent of the suppuration. The first case was at St. Peter's Hospital. Mr. Pardoe handed the patient over to me, in, I believe, an amused state of mind, for the man had been attending seven years, and had been getting out of bed to pass water five or six times nightly. The man was aged 56, a civil servant, dull, and therefore thoroughly reliable. I cross-examined the patient to get the clear facts. There were staphylococci, the ropy masses, and the scalding and difficulty in micturition, as well as sleeplessness. The method described was applied to him, and the frequency came down, as the chart showed. One night it rose to five times again; but as it was Sunday I focused the current on the prostatic urethra with good results; the perforations of the catheter were found stuffed with pus, evidently from the prostatic ducts. The frequency came down, and the next night he got up only once. The treatment was concluded on April 3, 1914, and since then the patient has had no further treatment, and enjoys unbroken sleep. His urine is not yet free from staphylococci, but it is free from pus. This patient's case has proved a very satisfactory one.

The other case to which I wish to refer was an acute one, of six weeks' duration. I gave a course, and then left the patient alone. He seemed to be on the point of a relapse. When the frequency amounted to five times a night I decided to interfere, and I made one administration for an hour, once a week for three weeks, and since then he has had clear nights.

Time does not permit dealing with more clinical material, but I hope the remarks I have made will be of service, because if suitable electrical treatment be in future applied to suppuration I think the method will be profoundly respected by surgeons.

Dr. HOWARD HUMPHRIS: I can confirm, in almost every particular, the results that Dr. Turrell has attained. I have read in several papers statements to the effect that the cases now seen were not frost-bite, but chilled feet. One high authority said there were no cases of frost-bite, but with this I do not agree, though it may be that he had seen none. The cases of frost-bite fall into two categories—the anæsthetic and the painful. I agree that the painful cases, as a rule, are not those with broken skin, and these answer to treatment by diathermy. The cases which had proceeded to gangrene I treated by the static breeze. I have seen some 200 affected toes, and most of them have looked as if they were going to be gangrenous; but, so far, I have lost only one toe among these. Some surgeons are sceptical about the electrical treatment, but one who has made inquiries as to results found that some cases, of equal virulence to his own, were treated electrically and had gone home well, while those not so treated, admitted at about the same date, were not well. That surgeon accordingly came round to the support of the method, and wrote to the medical papers saying that for non-gangrenous frost-bite electricity was of great value. At present I am treating a case with both feet frost-bitten. The patient is suffering intense pain, and the skin is in blebs, with an offensive sanious discharge. The surgeon in charge feared it would result in the anterior part of the feet having to be amputated. That was a week ago, and now a toe or two may be lost from each foot, but the loss will not be greater than that. Almost immediately there was a disappearance of the offensive odour, and the pain was subdued by small doses of aspirin, instead of the two “tabloids” of morphia previously necessary. For the anæsthetic form the faradic brush, and for the hyperæsthetic galvanism and diathermy are being used. With regard to sprains and nerve lesions, I can confirm what others have said. Diathermy for pain in nerve lesions has yielded remarkable results, and for recent sprains, such as those due to recruits falling from their horses, great relief is afforded by the Morton wave current.

Mr. BOKENHAM: My experience confirms that of Dr. Humphris in regard to the electrical treatment of frost-bite and sprains. For the interference with local metabolism, such as trench frost-bite entails, there is nothing to equal the effects of the static breeze discharge, but there must be a sufficient amount of discharge to cause benefit. I would say the same for some cases of indolent ulcer, and obstinate sinuses, such as I had to treat in Boer War cases, and at that date I was

convinced that static electrical treatment was much to be desired. In the treatment of deep sinuses, I have formed a good opinion of the value of ionisation, using sufficiently small currents, by means either of succinimide of mercury solution or by zinc electrodes amalgamated with mercury.

Dr. G. B. BATTEN : I desire to express my gratitude to Dr. Russ for his suggestive paper. May it not be that when Dr. Sibley used zinc sulphate and zinc chloride, he placed the limb practically in a positive bath, and immersed the rest of the body in a negative pole? Thus, while aiming at driving zinc ions into the tissues, he was also aggregating the deleterious microbes around this positive pole. Reasoning from that, is it possible to get as good results with the substitution of a 2 per cent. salt solution for the fluid he used, in the way suggested by Dr. Russ?

Mr. C. R. C. LYSTER : The Section is deeply indebted to Dr. Russ for making a great advance in knowledge concerning electrolysis. I have had the opportunity of treating a dozen or more cases on the lines Dr. Russ has laid down, and I can speak with definite knowledge that quite as good, if not better, results can be achieved with simple salt solution, so long as one employs a solution, not a pad. A solution admittedly cannot be applied to all parts, but I have succeeded with legs, and fingers, and eyes, and I have exhibited the identical cups I used for those cases. Twenty years ago, electrolysis was used with pads for driving in zinc and mercury and copper, but the bacteriology of the matter was never entered into until Dr. Russ did the work he had spoken of for the Royal Society. All present will feel deeply indebted to him for having come to the meeting to explain the process.

Dr. REGINALD MORTON : I wish to associate myself with the words of appreciation on the work which Dr. Russ has done. It is one of the most important communications which has been made to the Section for a long time. I would mention a practical point, because last autumn I had a case of ischio-rectal sinus, rather deep, which would not heal although various methods of ionisation had been applied; the patient refused operation. What I finally succeeded with was an adaptation of an old method of getting through the chronic stricture of the urethra, using filiform bougies. This method I applied

to the sinus, using many zinc wires, and wherever I found a side track I put a zinc wire into it, so that I got a wire in every side pocket. After that was accomplished, the wires were all bound together externally and the current applied. Healing occurred after a single application. Many sinuses following upon lacerated wounds are likely to be of the same nature, and it occurs to me that this hint may prove useful to some members.

Dr. CUMBERBATCH: In the treatment of sinuses my method is to pack the sinus with a zinc rod and connect it with the positive pole. The method has been successful in some cases, but in others it has failed. When confronted with failure it is necessary to remember three things. First, the sinus may not be clear of foreign bodies. In one case a sinus was discharging a quantity of pus, and the orthodox zinc rod method failed. The case was sent back to the surgeon, who opened the sinus and found a piece of khaki in it of the size of the finger-tip, which had not been seen in the skiagram. After the removal of that the sinus healed up at once. Secondly, is the sinus a straight one? If the sinus surfaces are not all touched by the rod, pus will still form. In one such case I have had success by using a very fine brass tube as the positive electrode. I first wash out with water and saline, then zinc sulphate, and after passing the current one gets the disinfecting action of copper and zinc ions. Thirdly, one must make sure that the zinc used is a germicide. In many cases I have found it was not, because the ulcer or sinus had refused to heal. As an alternative I have successfully used a solution of iodine in potassium iodide—1 per cent. potassium iodide containing iodine dissolved to make it an additional 1 per cent. strength. It is not a case of simple solution of iodine and potassium iodide, but a chemical compound is formed, probably a tri-iodide. The new ion enters when the fluid is connected with the negative pole. By placing a solution of this in contact with the skin, the skin becomes discoloured a faint yellow, but by connecting the solution with the negative pole the skin becomes an intense orange or vermillion. Recently I had a case of ulcer on the knuckle which refused to heal with surgical treatment or with zinc ionisation, but at once yielded to iodine dissolved in potassium iodide. That being connected with the *negative* pole is one answer to the question raised by Dr. Batten. Another solution which has a germicidal action is sodium salicylate, and I have had a case which healed up with that after failure had been met with even from iodide.

Another point I wish to mention in connexion with the treatment of sinuses and wounds is the use of X-rays. Chronic suppurations and sinuses which have persisted for a long time and resisted other forms of treatment have yielded to X-rays, and here again further help will be derived by placing along the sinus a silver or tin rod.

With regard to the treatment of frost-bite, it is first necessary to have an exact definition of "frost-bite," so that all who use the term will be referring to the same condition. I have had two cases of frost-bite in the feet, of the anæsthetic type, and I have tried one foot of a patient with one method, and the other foot of the same man with another. I applied the rhythmic sinusoidal current to the worst foot of one case, and to the other I applied the galvanic current, the strength of which had been made to wax and wane. The foot treated with the sinusoidal current recovered much sooner than the other. In another bilateral case I treated both feet by diathermy, and the improvement, in looks and in feeling, began with the first application. In diathermy, I start off by using moist pads soaked in salt solution, but later I place pads on the skin, which has received a little preliminary moistening; and the result is that there are fewer burns than by the other method. I have produced two bad burns by using a damp cloth pad in surgical diathermy, because the salt solution was converted into steam, and this caused two large areas of necrosis, but it should be added that the patient was already moribund from malignant disease.

The PRESIDENT (Dr. W. Ironside Bruce): I am sure members have derived a great deal of instruction from the discussion, and I cannot close the meeting without saying how much I have been interested in Dr. Russ's remarks setting forth his own method of dealing with bacterial infection. I agree with Dr. Reginald Morton that there is something entirely new in it, which is likely to change the prevailing views concerning the electrical treatment of disease.

Electro-Therapeutical Section.

March 19, 1915.

Dr. W. IRNSIDE BRUCE, President of the Section, in the Chair.

Two Cases of Malignant Growth treated by Diathermy : (1) Carcinoma of Tongue ; (2) Carcinomatous Ulcer of Cheek.

By E. P. CUMBERBATCH, M.B.

BOTH the cases were inoperable. The ulcer of the tongue measured 1 in. by $\frac{3}{4}$ in., and there was much surrounding infiltration. The diathermic cautery was applied in January, 1914, and the patient remained in bed ten days after the operation. The patient said the ulcer completely healed six weeks later. The only present indication that anything had taken place was the appearance of the outer border of the tongue, which was slightly concave. It was now covered by a smooth layer of epithelium. The operation took ten minutes, and the result was better than could have been expected after the application of the knife.

The second patient, a man, aged 60, had a rodent ulcer on the cheek, in front of his ear. As a result of the application of X-rays some years ago it healed up, but latterly he developed an extensive ulcer, which proved to be squamous-celled carcinoma. It was treated by radium, but refused to heal. Last July the diathermy cautery was applied, and the edges and base of the ulcer were coagulated, and sloughed off. Smooth, supple skin could now be felt covering the site of the former ulcer.

DISCUSSION.

Dr. HUMPHRIS asked what amount of current was used, what the position of the indifferent electrode was, and whether a general anæsthetic was given.

Dr. Worrall asked, in the case of the tongue, what was the length of time during which the current was allowed to flow, and whether more than one application was needed.

Dr. CUMBERBATCH replied that the amount of current used for the treatment of these growths was just sufficient to cause coagulation, as indicated by the change in colour. The amount of current to produce that depended on the extent of surface contact between electrode and tissue. With a single needle, $\frac{1}{2}$ amp. would cause coagulation; with a disk a centimetre in diameter 2 amp. would perhaps be needed. In the cases shown he used an electrode measuring 1 cm. by $\frac{1}{2}$ cm., with five prongs attached, and that required a current of 1.4 amp. He mostly used one active electrode in contact with the growth, and one indifferent electrode, placing the latter on the chest or other flat surface; if it did not make perfect contact, there was danger of severe burning. In nearly all such cases the patient was given a general anæsthetic. If local anæsthesia was used for growths on or near the face or throat there was risk of movement by the patient. If enough heat were used to produce deep coagulation the patient could not tolerate the application. The tongue case had only one application, and the coagulation time varied from five to ten seconds for each position of the active electrode; it depended on the strength of current put on originally. Experiments on excised tissues seemed to show that it made no difference whether a strong current produced the effect quickly or a weaker current acting more gradually.

(1) **Bacteria moving during Electrolysis ; (2) Changes produced in Coli Bacilli after Electrolysis.**

By C. RUSS, M.B.

The first slide showed urine from a case of cystitis, in which the coli bacilli were undergoing no change; this was supplemented by the next slide, in which there was an elongation of the bacilli following on the electrolysis; there was also a change of reaction to the Gram stain, an evidence of chemical change in the bacterial envelope. He first produced the effect clinically, and then wanted to see if he could

cause the same effect artificially, using a fluid closely resembling that usually present in the bladder, though the actual character of the bladder fluid was varied with each drop of urine added to the bladder. He produced the elongated effect in sixty-six hours. He repeated the experiment thirteen times before he arrived at just the right strength of current, $\frac{1}{15}$ ma.—i.e., a non-lethal current.

DISCUSSION.

Dr. ETTIE SAYER said that last summer she had a severe case of pyorrhœa with abscesses in both jaws, enlarged cervical glands, and ulcerative colitis. She asked Dr. Eyre to make a vaccine for it. The organisms were *Streptococcus longus* and *Streptococcus pneumococcus*. In the early stage large quantities of streptococci and pneumococci were found in the fæces, but no abnormal *Bacillus coli*. For the colitis she gave abdominal galvanism. After three months another examination was made. The vaccine had been successful in destroying the streptococcus and pneumococcus, but the fæces contained large quantities of elongated blue coliform bacilli. She did not know whether their presence was due to the galvanic current or not, and would never have associated the two conditions, but for Dr. Russ's very interesting discoveries and the demonstrations which he had given them that night.

Dr. FINZI asked what amount of current Dr. Russ gave in these cases: the strength and the duration of the application.

Dr. DAVID ARTHUR asked whether, by further cultivations, the bacilli could be got back to their previous form.

Dr. BROWNING considered that the point made by Dr. Russ with reference to the lengthening of the organisms was an important one. Other means of inhibiting organisms like *Bacillus typhosus* and *Bacillus coli* produced the same effect, and no doubt the lengthening was in this instance also an evidence of inhibition. Ainley Walker, of Oxford, produced similar appearances by growing typhoid bacilli in a medium containing a small amount of an extremely inhibitory substance—namely, gentian or crystal violet. A considerable time ago, when he was himself studying the effects of active serum on growing organisms, he found exactly the same leptothrix appearance brought about by the inhibitory action of serum. The production *in vivo* of a more or less enduring mitigation of the pathogenic action of an infecting organism, which they were all anxious to achieve, seemed to have been effected with considerable success by Dr. Russ.

Dr. RUSS, in reply, said he was much interested in Dr. Sayer's remarks: the effects were similar to those he had been producing in the bladder. The

current used in the case must have been enormous compared with that which he employed in his tube; if he had used a stronger one he would have killed off the organisms. For cystitis, on the first occasion he did not usually give more than 1 ma. for forty-five minutes; and he had not yet found it necessary to increase the dose beyond 3 ma., except once when he gave 5 ma. During the first week he kept up the administration for an hour; during the second week for one and a half hours, and never more than one and a half hours. The long bacilli did shorten again in culture, just as Ainley Walker found. But they did not go back to their original form when the change had been brought about in the bladder. In the case he spoke of the effect was produced in four weeks, and he had kept in touch with it for eighteen months. Since the cessation of the treatment the bacilli in the urine had been gradually getting shorter. He had seen the lengthening in several cases of *Bacillus coli* cystitis.

The Removal of Foreign Bodies from the Tissues with the Aid of an X-ray Director.

By W. LINDSAY LOCKE, M.B.

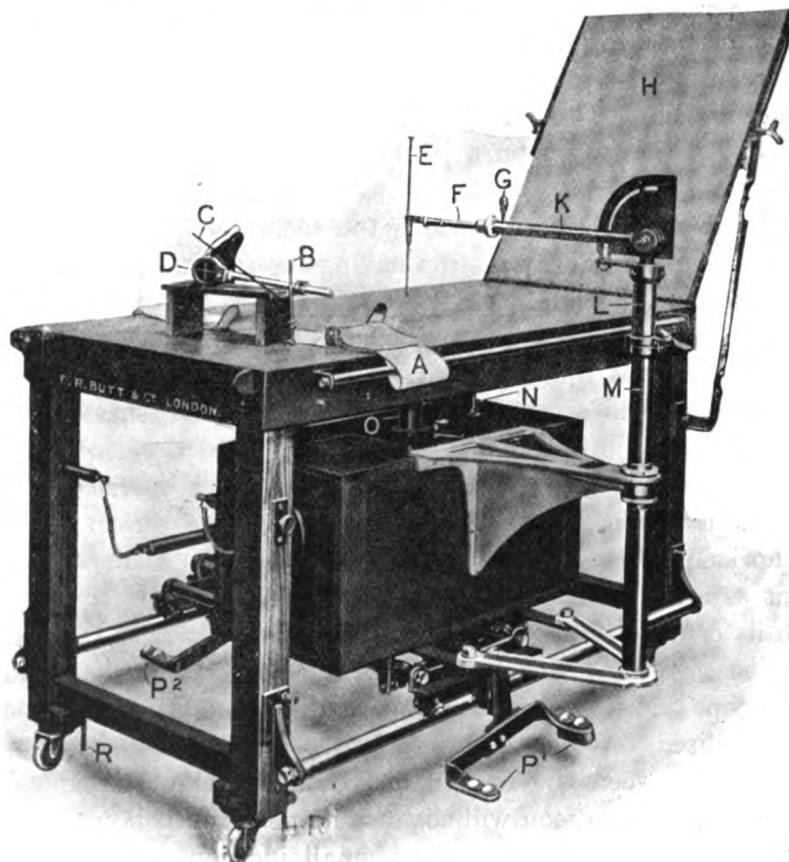
THE localisation of foreign bodies in the tissues is a subject which has been discussed recently almost *ad nauseam*, but the method which I am about to describe, and which you, Sir, so ably demonstrated at a recent meeting of the Medical Society of London, presents features so essentially different from those with which we have become familiar that I venture to bring it again to your notice. I may say that I had the pleasure of working out the practical application of the method with our President, and it is at his suggestion that I bring it before the members of this Section.

With the methods hitherto in use the surgeon is shown a mark or marks on the skin and told the foreign body occupies a position relative to those marks. During the operation the marks are liable to be disturbed, and when so disturbed are of little further assistance; with this method a mechanical guide is provided and the line is indicated until the foreign body is reached.

The special apparatus required consists of a small addition to a couch, which though perhaps elaborate and costly may be easily adapted to do all general work, and then forms the most convenient piece of apparatus of its kind with which I am acquainted.

The essentials which must be observed are as follows: The X-ray

tube is placed in a box below the couch which is attached to an arm above the couch, the whole moving easily in all directions on a horizontal plane and capable of being fixed where required. On the end of the arm above the couch is arranged a vertical needle, and the tube is adjusted so that its central radiation coincides exactly with the



A, fixing band and buckle; B, needle with guide and stop; C, blunt graduated director; D, fluoroscope with central cross-wires; E, blunt director; F, sterilisable needle and director carrier; G, taper fixing pin for F and D; H, removable back for use at either end; K, hinged cross-arm; L and M, vertical adjustment slider; N and O, diaphragm stops; P¹ and P², clamping pedals; R, fixing and levelling screws.

axis of the needle. The needle is capable of movement up and down only on this line. Two needles are provided, sharp and blunt; the blunt needle is graduated in centimetres. As the operation is to be

done on the X-ray couch this may have to be placed in the operating theatre, and to make it possible to centre the foreign body in daylight, a small fluoroscope is provided which fixes on to the end of the horizontal arm in place of the needle carrier, and has cross-wires arranged so that the crossing lies on the needle track. The needles and their carrier are easily removed for sterilising purposes and always fit accurately into place again. The horizontal arm carrying the needle or screen may be raised or lowered to enable it to be placed near the surface of the part to be operated upon, and may also be swung vertically out of the way upon a joint specially provided for that purpose at its base.

In the use of this apparatus the technique would be somewhat as follows: An X-ray examination having been made beforehand, to decide the easiest way to approach the foreign body, and a mark having been made on the skin, the patient is placed on the couch and anaesthetised, and the part put into the position required and fixed there by means of sand-bags and straps. In arranging the position of the patient it should be borne in mind that the incision is, as a rule, to be vertically over the foreign body. The part is prepared for operation in the usual way and a sterile towel laid over it. With the screen on the end of the horizontal arm the whole tube box, cross-arm and screen are moved about as an orthodiagraph until the shadow of the foreign body lies with its centre at the crossing of the wires, in which position they are clamped rigidly to the couch by means of the pedal provided. The fluoroscope and its holder are now removed and the surgeon substitutes the sterilised director and its carrier. If no important structures intervene between the foreign body and the skin the sharp needle is chosen, and the surgeon will advance its point until it touches the skin, in which position he may make a small incision to facilitate the introduction of the needle, which is then pushed forward until it impinges on the foreign body. Contact between the needle and the foreign body may be felt or Sir James Mackenzie Davidson's telephone may be used to announce the fact. The horizontal arm and needle carrier are now pulled up so as to support the upper extremity of the needle while the surgeon cuts down alongside it to its point where the foreign body is found and removed. Should the foreign body lie in the neighbourhood of important structures where the use of the sharp needle is thought inadvisable, the blunt graduated director should be used, the depth of the foreign body having been ascertained beforehand. The procedure

is the same as when using the sharp needle, the point of the director being advanced till it touches the skin; the reading on the scale is then noted and the operation proceeded with, the director being swung into position when required to indicate the line and measure the depth at any stage of the operation. Provision is easily made for ascertaining the depth at which the foreign body lies. A scale is placed on the cross-rails below the couch to measure the tube shift, and another on the vertical extension which reads the distance from the anode to the tip of the blunt needle when the latter is in the zero position; this allows of accurate estimation of the depth of the foreign body by triangulation.

In conclusion, this method may be applied in all cases in which the foreign body can be seen on the screen, and it permits of the surgical removal of such from the tissues with expedition and certainty.

Electrodes for Diathermy and Static Treatment.

By W. J. TURRELL, M.D.

DR. TURRELL exhibited some diathermy rheophores, designed to secure efficient insulation, flexibility, and complete protection of the patient from the effects of arcing in the event of fracture of the rheophore wires. He also showed some simplified patterns of diathermy electrodes for surgical purposes, a much enlarged and strengthened autochrome tank, manufactured at his suggestion by Messrs. Newman and Guardia, for the daylight development of radiographic plates, and an asbestos and rubber electrode for administering the static breeze.

Epidiascope Demonstration of Skiagrams demonstrating Bullet Injuries of Skull and other Wounds and Injuries, with Notes on Cases.

By W. J. S. BYTHELL, M.D.

THE exhibitor explained that as he did not know until the previous evening that he could attend the meeting, the slides were not quite as announced in the agenda.

The first slide was a skiagram of a case in which a Belgian, while prone on the ground, received a bullet on the top of the skull; it traversed the brain substance, and lay embedded in the petrous bone. He also showed an antero-posterior view. The man had no cerebral symptoms of any kind. He was seen ten days after the injury, and was normal mentally and physically.

A slide of another case was shown in which the bullet entered the top of the head, and was found resting on the tentorium in the parietal lobe. A few days after receiving the wound he had complete hemiplegia, but within three weeks the whole of the paralytic symptoms had passed off; there was nothing left a month afterwards except a slight shuffling gait, equally on both sides. But now, six weeks after the wound, he was rather "soft," and was the butt of the other men.

Another case was that of a man recently admitted with a large shrapnel wound in the head. There were pieces of depressed bone, fragments of bullet, and the major part of the bullet shown. That man was exceedingly ill, and probably would die in a day or two. He had now complete hemiplegia, and was in a semi-comatose condition. The difference compared with the results in the other cases seemed attributable to the shattering effected, and the consequent brain destruction.

Another case was that of a man who, while lying on the ground, received a bullet on the end of the nose. It carried away the pre-maxillary part of the maxilla and went through the tongue, and was now lying alongside the fifth cervical vertebra. He saw the man two days after the wound, and there was much extravasation in the neck; but afterwards the only remaining symptom was complete paralysis of the left vocal cord, probably through the bullet having injured the vagus or the recurrent laryngeal nerve.

The next case was that of a man who received an empty German cartridge case in the muscle of his calf. He did not know whether this had happened through the Germans filling their shells with empty cartridge cases and other pieces of metal, or whether the cartridge case was forced in by a shell bursting near.

The next slide showed a bullet embedded in the medullary cavity of a long bone without any damage to the bone exterior. The negative showed no trace of fracture. The man, he believed, was again at the Front.

The next skiagram was from a German prisoner with a bad septic

wound in the leg. There was a mass of callus, and the skiagram clearly showed the gas track in the middle. It was necessary to amputate.

The last case was that of a bayonet wound in the thigh, and the skiagram showed the distinct shadow of myositis ossificans.

**Prints illustrating Diagnostic Points in New Growth of Lung,
Hour-glass Contraction of Stomach, &c. Skiagrams of
Dermoid Cyst containing Teeth and Hair.**

Shown by ROBERT KNOX, M.D.

IN reference to the last exhibit, the patient had a large palpable tumour in the pelvis. There was a large shadow on the right side, and several denser areas, which presented considerable difficulty; it was thought the dark bodies might be teeth. The presence of the tumour suggested a cyst, and a dermoid was thought to be the most likely form. Operation confirmed this, and a skiagram of the cyst was taken after its removal from the body. The cyst contained teeth, bone and hair.

Case of Foreign Body in the Left Bronchus.

By H. ANNESLEY ECCLES, M.D.

I VENTURE to bring this case before the notice of the members of the Section, not because of its rarity, but because of some points of interest that it presents from the clinical, radiographic, and surgical aspects. The patient, a girl, aged $3\frac{1}{2}$, swallowed a foreign body, the nature of which appeared to be doubtful, on February 9, 1915. A fit of choking ensued, which only lasted ten minutes. A soft œsophageal bougie was passed without meeting with any obstruction, and it was surmised that the foreign body had passed into the stomach. No untoward symptoms arose until February 25, sixteen days after the foreign body had been introduced, when a slight cough developed, and the breathing after exertion became noisy. This was accompanied by a slight dry râle all over the chest, but there was no rise of temperature. On the

62 Melville: *New Sign in X-ray Diagnosis of Tuberculosis*

twenty-fourth day the temperature rose to 101° F., and the air entry was found to be deficient on the left side of the chest. On the twenty-sixth day the skiagram shown was taken. The foreign body was now seen to be a long pin, which had lodged in the left bronchus with the point upwards. It could not be observed on screen examination. It is less common to find the foreign bodies in the left than the right bronchus, the proportion being about one to three.

The patient was placed under the care of Mr. Norman Patterson, who operated on the twenty-eighth day. Chloroform anæsthesia was used, combined with local cocaine anæsthesia. The bronchoscope was passed with some difficulty owing to the small size of the air passages. The pin was eventually seized by forceps, and removed together with the bronchoscope. The patient recovered rapidly with no sequelæ.

A Note on a New Sign in the X-ray Diagnosis of Pulmonary Tuberculosis.

By STANLEY MELVILLE, M.D.

DR. STANLEY MELVILLE suggested that limitation of the movements of the diaphragm was overrated as a valuable diagnostic sign in early pulmonary tuberculosis. Even a greater restriction of movement was frequently seen in inflammatory conditions of lung and pleura; while, in the case of mouth-breathers and in the majority of women, the diaphragm was not extensively used as a muscle of respiration.

Sir Robert Philip, of Edinburgh, for many years had taught the value of what he felicitously termed "Tidal Percussion," in relation to the *functional activity* of the lung; and it was to the application of this in radiology that the speaker was anxious to draw the attention of the meeting. The term "tidal percussion" meant the difference between the resonant note obtained during inspiration and expiration, the tidal change in the healthy lung being considerable. He would not venture upon a discussion on the clinical aspect of the question: Sir Robert Philip's writing on this subject was, however, extremely interesting, though the view taken did not appear to have met with anything like universal acceptance among clinicians.

Having regard to the principle that limitation of the tidal percussion depended upon the degree of lessened expansion of the lung (and it was

convenient to study this at the apex of the lung), the following were the observations that he had made, so far as the investigation had been carried. In the normal lung, during full inspiration, the expansion of the apices was equal, and it was possible to see, above the clavicle, the posterior ends of the two upper ribs and, possibly, the upper border of the third rib; further, and this he regarded as important, the two upper intercostal spaces were of equal width.

In emphysema usually the upper three ribs could be seen above the clavicle, and the intercostal spaces, though still of equal width, were widened. In lessened expansion, due to interference with the air entry into the ascending bronchus, not only was a much smaller area of the bony framework of the thorax visible, but the intercostal spaces were definitely narrowed, the two upper ribs being frequently so close together that no translucent lung could be made out. In several skiagrams which he showed, illustrating these differences, in a pulmonary root lesion the space between the first and second ribs was practically obliterated, while in a dense fibrotic lesion of the region of the upper lobe the first and second spaces were much narrowed, and there was no lung tissue to be seen in the first intercostal space.

While he considered it more convenient to estimate this degree of lessened expansion during the screen examination, he would emphasise the necessity there was that the central rays of the X-ray tube should always bear the same relation to the part under examination. An arbitrary point was taken in his work, this point being the level of the third costal cartilages with the sternum.

He hoped others would follow out the investigation in their own work, and that the subject might be brought up again at a subsequent meeting of the Section.

Demonstrations.

By J. A. CODD, M.D.

LANTERN slides of (1) an improved tube-stand. The majority of tube-stands are arranged so that the long axis of the tube is vertical, and in many positions of the tube for treatment the cathode stem is in the way, and comes in close contact with the patient's body. For therapeutic purposes the tube should have its long axis horizontal when

the tube box is in the normal position, and to secure this in the case of the type of tube box the exhibitor has used, he has replaced the straight arm which carries the ball and socket joint by an arm bent at a right angle, and finds that this simple change gives greatly increased facilities for approaching the tube to incurved surfaces such as the axilla, the side and front of the neck.

(2) A therapeutic chair arranged like a laryngoscopic chair, except that, at each side, there are additional sockets for the reception of the arm that carries the head-rest. By placing the head-rest in one of these extra positions the head may rest comfortably upon it and so open out the angle between the head and the shoulder, and thus facilitate close applications to the neck.

(3) Records of visceral movements by the use of colour tracings. In the case of an actively moving viscus tracings are made on the lead glass covering the fluorescent screen at the different stages of the movement, each stage being represented by a different colour. The tracings are then transferred to translucent paper, each phase of the movement being represented by a different colour, so that the interlacing outlines can be easily distinguished, the order of sequence can be represented by a series of corresponding coloured lines in the margin, and the duration of any phase can also be indicated in the margin.

M. LUC HERTOGHE (a member of the Belgian Ambulance Corps, introduced by Dr. Jordan) exhibited a Belgian 75-mm. shell, which was fired against the Belgians by the Germans who had captured some of the guns and ammunition at Antwerp. Also a specimen of the aerial arrows, dropped in bundles of 250 by the Belgian airmen.

Electro-Therapeutical Section.

April 16, 1915.

Dr. W. IRONSIDE BRUCE, President of the Section, in the Chair.

The late Dr. H. Lewis Jones.

DR. REGINALD MORTON said that, as one of the old members of the Electro-Therapeutical Society, who had a share in bringing that Society into the brotherhood of the Royal Society of Medicine, and who had been very regular in attendance at its meetings, he assured his hearers that at no time had members met in such a gloomy mental atmosphere as they did at this moment, owing to the loss which had been sustained by the death of Dr. Lewis Jones, for, in his passing away, the specialty had suffered a loss which could not be made good. Dr. Lewis Jones was truly the father of electro-therapeutics, so far as the British Empire was concerned. From the time that their friend took charge of the Electrical Department of St. Bartholomew's Hospital, in 1889, electro-therapeutics began to take an upward trend; and the secret of that lay in the fact that Dr. Jones was very scientific and thorough, and his attitude was absolutely correct. The specialty had often been regarded with scorn, but matters greatly improved when he took it in hand, and he maintained his hopeful spirit, and never sought to retaliate against its critics; and if he offered an answer it was very effective by reason of his confident yet incisive manner. Unfortunately, his health began to fail, and when he suffered the great loss of his son, who went down in the *Hawke* he was utterly crushed. A pathetic note received from Dr. Lewis Jones at that time showed he had received a blow from which he was not likely to recover.

Dr. Jones was a reserved man, but of most kindly and genial nature; and a great point to be remembered about him was the encouragement he gave to young aspirants in electro-therapeutics

and radiology. To the speaker he had always been most helpful, both in matters scientific and in things more mundane, and one always felt the better from having consulted him. Only those who were more or less intimate with Dr. Jones could realise how much the profession had lost. He valued the privilege of being invited to propose the following resolution :—

“That this Section wishes to express their deep sense of the very serious loss that has been sustained in the death of Dr. Henry Lewis Jones, not only by the Section, but by all those interested in electro-therapeutics and radiology, and also to offer their most sincere sympathy to Mrs. Lewis Jones in the double loss of her husband and only son within a few months of each other.”

Dr. CUMBERBATCH desired to second the resolution proposed by Dr. Reginald Morton. His own personal knowledge of Dr. Lewis Jones did not extend further back than the year 1911, but he soon discovered what manner of man he was—a skilled physicist and an able physician. Whenever he appealed to Dr. Jones for advice, he acted as a kindly light leading him through the encircling gloom ; and he thought all present would agree with Dr. Reginald Morton that the deceased was the father of the school of electro-therapy in the British Empire. He was its most influential teacher and most distinguished member. From what he had learnt from friends and colleagues of the deceased, he knew that in early life Dr. Jones was a prominent athlete and a distinguished classical scholar.

The resolution was carried in silence by members rising in their places.

Report of the Sub-Committee on the Standardisation of the Opaque Meal.

Dr. REGINALD MORTON, in presenting this Report, said that eighteen months ago, when this Sub-Committee was formed, the need for a standard meal was felt, because there were workers all over the country, each of whom had his own particular form of meal. In regard to the best meal for ordinary purposes, the whole Committee was in agreement ; but in one particular Dr. Jordan stood out, and that gentleman's report was separately presented as a Minority Report. There had been no precise quantities laid down.

MAJORITY REPORT OF THE SUB-COMMITTEE OF THE ELECTRO-THERAPEUTICAL SECTION OF THE ROYAL SOCIETY OF MEDICINE ON A STANDARD OPAQUE MEAL FOR RADIOGRAPHIC EXAMINATION OF THE ALIMENTARY CANAL.

- (1) The standard meal can consist of either bread and milk or porridge (Note 1).
- (2) The total bulk of the meal should be about half a pint.
- (3) The meal should be mixed with 2 oz. of barium sulphate or 2 oz. of bismuth oxychloride (Note 2).
- (4) The meal should be taken as nearly as possible on an empty stomach.
- (5) No aperient or other medicine should be taken within thirty-six hours of the first examination, and if the bowels are not opened naturally, an enema should be given on the morning of the examination.

Note 1.—(A) Preparation of bread and milk: 2 oz. of white bread, without crust, cut into small cubes, are placed in the bowl from which the meal is to be taken. 8 oz. of ordinary or malted milk are boiled in a separate vessel with 2 oz. of bismuth oxychloride or 2 oz. of barium sulphate; this mixture is stirred and poured over the bread. Sugar is added to taste.

(B) Preparation of porridge: 7 oz. of porridge made from the finest oatmeal are mixed with 2 oz. of bismuth oxychloride or 2 oz. of barium sulphate, and sufficient milk to make the total bulk up to 10 oz. The patient adds as much brown sugar as he likes.

Note 2.—(A) Bismuth carbonate neutralises about 22 per cent. of the free acids of the stomach, but there is no evolution of gas, as the carbon dioxide is dissolved as rapidly as it is produced (H. Finnemore and A. E. Barclay). The reduction in the acidity of the gastric contents tends to reduce the motor activity of the stomach and to interfere with the normal action of the pylorus.

(B) (i) Bismuth oxychloride is slightly more opaque to the X-rays than bismuth carbonate (R. Morton).

(ii) Bismuth oxychloride is about one and half times as opaque to the X-rays as an equal bulk, and twice as opaque as an equal weight of barium sulphate (R. Morton).

(Signed) A. E. BARCLAY,
A. F. HERTZ,
REGINALD MORTON,
S. GILBERT SCOTT.

MINORITY REPORT.

I wish to point out that the standard meal here described and the method of giving it are not, in my opinion, suitable for the investigation of chronic intestinal stasis. For this purpose I recommend an emulsion containing 4 oz. of carbonate of bismuth mixed with sugar of milk and water, to be taken within two hours after an ordinary breakfast, no purge or enema having been given. The details of the procedure are explained in the *British Medical Journal*, November 22, 1913.

(Signed) A. C. JORDAN.

DISCUSSION.

Dr. REGINALD MORTON moved "that the Majority Report of the Sub-Committee be adopted by the Section."

Dr. A. F. HERTZ said he thought it would be desirable to add a note that barium sulphate was preferable, at any rate for hospital use, as it was very much cheaper than bismuth oxychloride and equally good for radiographic examinations. By using barium sulphate, Guy's Hospital had saved about £50 per annum.

Dr. BARCLAY supported Dr. Hertz's remarks, and seconded Dr. Morton's motion.

Dr. METCALFE stated that he agreed with the general conclusions as to the opaque material and the quantity of the meal to be given; but he would like to ask the Sub-Committee whether they had any suggestions to offer as to the flavouring of the meal, so that it would be somewhat more palatable than the ordinary opaque meal. Owing to disordered digestion, such meals were often repugnant to the patient, and an exceptional X-ray appearance of the viscera was sometimes produced. He favoured the addition of a certain quantity of chocolate or cocoa—the latter preferably in the form of what was commonly known as "Homœopathic Cocoa"—i.e., containing arrowroot and other things in addition to the cocoa. If the mixture were made more attractive, there was the likelihood that better and more uniform results would be obtained.

Dr. JORDAN agreed with Dr. Metcalfe that the meal should be made agreeable, but with regard to flavouring, the difficulty arose that one needed to know in advance the personal preference of each patient. Chocolate was perhaps the most generally approved by patients, but some disliked it, and others objected to vanilla or to peppermint. He thought there was room for two kinds of opaque meal: a solid preparation which was really a "meal," and

an emulsion (such as he recommended in the Minority Report) which rendered opaque the meal already in the stomach. When the decision was made to give a patient a solid opaque meal, he had one bit of advice to offer—to let the patient come for it as hungry as possible !

Dr. BAILEY said that, personally, he was fond of cornflour, and there were many people who did not like oatmeal but had no objection to cornflour. He asked whether it was not desirable to make reference to the more solid substance required in cases of stricture of the œsophagus.

The PRESIDENT commented on the quietness with which the proposal for a standard opaque meal had been received by the Section. He hoped that did not mean that some did not propose to fall in with it ; he hoped all would do so, because it would make a good deal of difference in examinations and the comparisons of results if the same method were used by all. Bread-and-milk and porridge were the substances selected because one or other was acceptable to most people. Immediately the question of flavouring was entered upon a difficulty arose, for tastes were very diverse. He regarded Dr. Hertz's suggestion as to barium sulphate as an excellent one ; the saving in a big institution effected by using barium sulphate in preference to bismuth oxychloride was an important matter, and a reference to it should be added to the Report of the Sub-Committee.

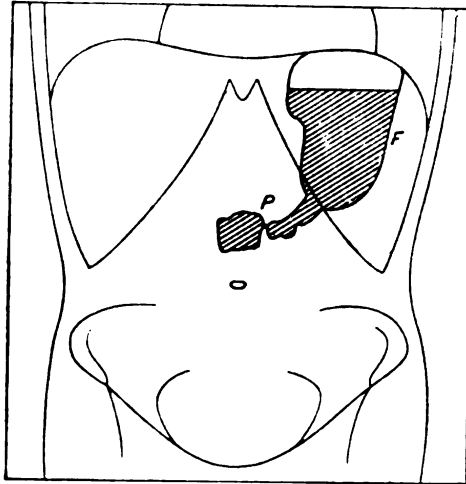
Dr. REGINALD MORTON replied that the Sub-Committee discussed the question of flavouring of the meal, but decided not to lay down rules which were too precise ; their object was to form a basis, and it was felt that free discretion might be left as to flavouring, especially as, in the words of Dr. Jordan, it would be necessary to know the taste of the person in advance. He agreed that everything should be done to make the meal as little objectionable as possible. With regard to Dr. Hertz's suggestion, he would be glad if bismuth oxychloride could be left out altogether, and barium sulphate be recommended for all cases. He had had some cases in which the barium seemed to accelerate the digestion of the meal, but there was not sufficient difference in the action of the two substances to warrant the more expensive substance being recommended. In answer to Dr. Bailey's suggestion, cases of stricture of the œsophagus were in a different category, and obviously a stiffer pabulum was required, and less of it ; but the Sub-Committee were concerned with derangements of the ordinary digestive system. He would like, with the permission of the Section, to add Dr. Hertz's suggestion to the Report. This was agreed to, and the Majority Report was formally adopted.

Some Alimentary Canal Cases of Radiological Interest.

By ARTHUR F. HERTZ, M.D.

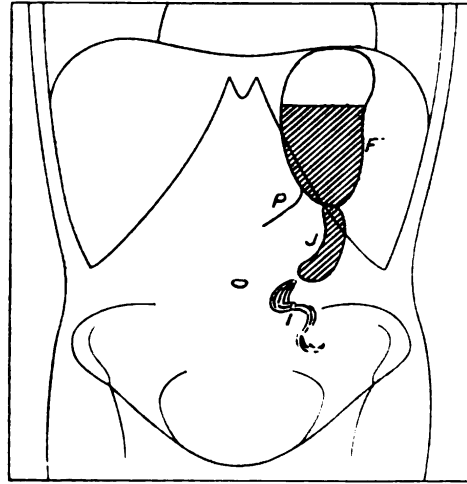
Case I: Achylasia of the Cardia (so-called Cardiospasm).—This case has already been described in the *Proceedings* (Clinical Section), 1914, p. 22.

Case II: Syphilis of the Stomach.—Mr. G., aged 33, had syphilis in 1901. In 1909 he began to suffer from indigestion; his appendix, the lumen of which was partly obliterated, was removed in December. He was better for a time, but in June, 1911, he complained of pain in the right hypochondrium, which was relieved by vomiting and by careful dieting, also of flatulence, wasting and constipation, with slight tenderness beneath the right rectus. An X-ray examination is said to have shown that the stomach was normal, except that there was considerable delay in its evacuation, which was supposed to have been due to a duodeno-jejunal kink, and a diagnosis of intestinal stasis was made. In April, 1912, Dr. Ironside Bruce found that the normal gastric outline was obliterated in the pyloric half of the stomach (fig. a); a gastro-enterostomy was performed in May, 1912, by Mr. Peter Daniel. No ulcer was found, but the pylorus was rigid and the mucous membrane of the pyloric end of the stomach was hard and granular in appearance. There was only temporary improvement, and when I saw the patient with Mr. Daniel in February, 1913, he was suffering from severe pain over the whole of the upper part of the abdomen, which was worst about four hours after meals and often awakened him at 2 a.m. The symptoms were similar to those he had before the operation, except that he now did not vomit. An X-ray examination (fig. b) showed that the food left the stomach very rapidly by the stoma, and the pyloric end of the stomach was completely obliterated. As it was thought that the condition might be due to syphilis, a Wassermann reaction was tried and found to be positive. Mr. Daniel therefore gave the patient three injections of neo-salvarsan. By April he was completely well, and when seen in March, 1915, two years after the salvarsan injection, he told me that he had had no return of symptoms and was able to take full diet without any discomfort. An X-ray examination showed no



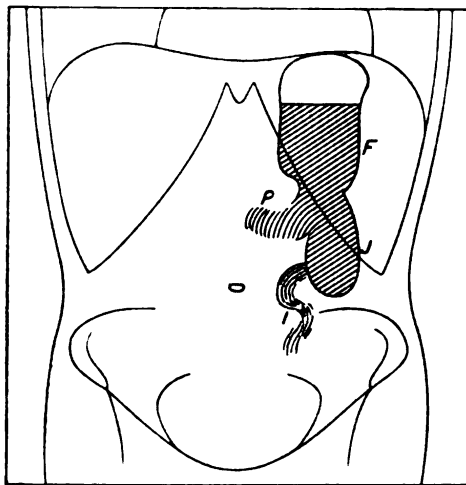
(a)

April, 1912. (From skiagram by Dr. Ironside Bruce.)



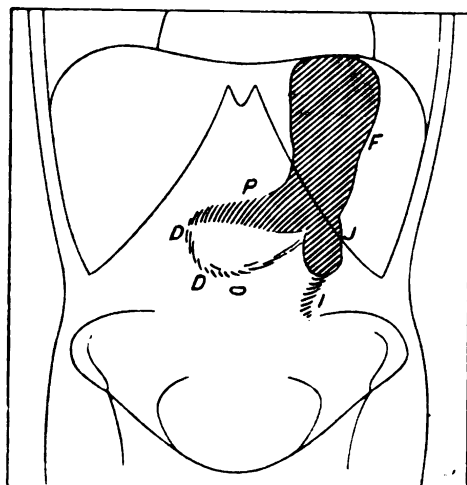
(b)

February, 1913. After gastrojejunostomy.



(c)

March, 1915. Two years after salvarsan treatment. Standing.



(d)

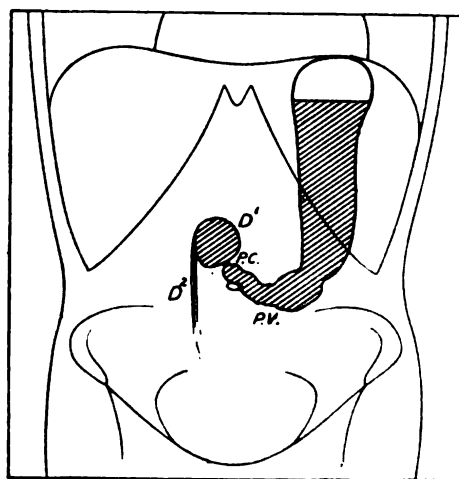
March, 1915. Lying down, the patient having turned on his right side for two minutes.

Case II: Syphilis of the stomach.—F, fundus; P, pyloric end of stomach; D, D, duodenum; J, jejunum, just beyond anastomosis; I, small intestine beyond J.

great alteration except that a narrow channel was now present through the pyloric end of the stomach (*c* and *d*).

There seems no doubt that this was a case of gumma of the stomach ; such a possibility should therefore be borne in mind whenever the appearance, which is generally regarded as pathognomonic of cancer of the stomach, is seen, as the condition ought to be curable without operation.

Case III : Carcinoma of Stomach causing Pyloric Incompetence.—Mr. P., aged 78, had had an excellent digestion until two months before I first saw him, when he began to suffer from loss of appetite, flatu-



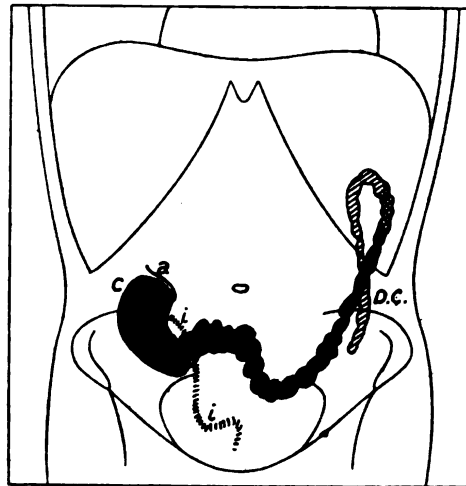
Case III : Carcinoma of stomach causing pyloric incompetence. — P.V., pyloric vestibule infiltrated with growth ; P.C., pyloric canal ; D¹ and D², first and second parts of duodenum.

lence, and pain immediately after meals. There was no vomiting, and although he still ate a moderate amount of food, he had lost 20 lb. since the onset of symptoms. He was formerly very vigorous, but now felt extremely weak. His bowels were regular. Nothing abnormal could be felt on palpation. The X-rays showed that the whole of the pyloric end of the stomach was infiltrated by growth, the outline of the shadow being irregular and the peristaltic waves ceasing at a point about 3 in. from the pylorus. In spite of this the food passed with extreme rapidity through the pyloric canal, which was widely open, into the duodenum, the first part of which—the “pyloric cap”—looked abnor-

mally large, but was really simply distended as a result of the rapid passage of food from the stomach. There was no delay in the passage through the rest of the duodenum or intestines.

I believe that the condition of pyloric incompetence seen in this case is a common precursor of the pyloric obstruction caused by cancer. It is a result of infiltration of the muscular tissue preventing the normal contraction of the pyloric sphincter at a period before the invasion of the latter is sufficient to cause obstruction. Such a case shows the importance of early X-ray examination, by means of which cancer of the pyloric end of the stomach may be recognised before the more obvious symptoms due to pyloric obstruction have appeared.

Case IV: Appendicitis with Undescended Cæcum; Gastric Antiperistalsis without Pyloric Obstruction.—Mr. C., aged 36, complained



Case IV: Appendicitis with undescended cæcum. *a*, appendix; *C*, cæcum; *D.C.*, descending colon; *i*, *i*, terminal loop of ileum.

of constant pain in the right hypochondrium for four months. It was always aggravated by exertion, but had no special relation to meals. It was sometimes severe enough at night to keep him awake. He frequently vomited within an hour or two after meals, the food being partially digested and mixed with very sour fluid. The upper part of the right rectus was found to be very rigid, and he was very tender in the region of the duodenum, so that, in spite of the absence of any characteristic relation between the pain and the time

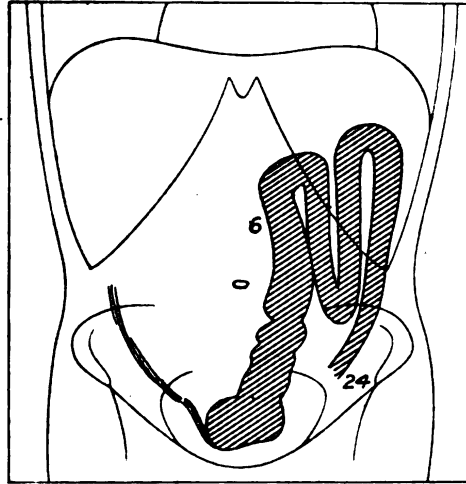
of meals, the possibility of duodenal ulcer had been suggested. An X-ray examination showed, however, that the stomach was normal in size, peristalsis being active but somewhat irregular, as an occasional feeble anti-peristaltic wave passed from a point about 3 in. from the pylorus on the greater curvature at the same time as a normal peristaltic wave started from the same point on its way to the pylorus. There was no delay in the evacuation of the stomach, and there was no stasis in the ileum, the end of which rose out of the pelvis to join the cæcum, which was situated above the iliac crest and formed the beginning of a somewhat dropped transverse colon. There was no trace of any ascending colon, and the appendix was clearly seen passing from the inner side of the cæcum upwards and inwards until it emerged above its highest point. Its position corresponded with that of the pain, and palpation under the screen showed that the cæcum itself and the duodenum were not tender, the tenderness being confined to the appendix. Mr. E. C. Hughes removed the appendix, which showed signs of chronic inflammation, its situation corresponding to what was seen with the X-rays; the duodenum was normal. The patient has been free from symptoms since the operation was performed two months ago.

This case is also noteworthy from the fact that reversed peristalsis was seen in the stomach, although there was no pyloric obstruction. The only other instance I have seen of reversed peristalsis in the absence of obstruction was also a case of chronic appendicitis.

Case V: Appendicitis with Colon situated entirely on the Left Side of the Abdomen.—Mr. S., aged 22, has had frequent attacks of severe pain ever since he was poisoned with bad meat four years ago. The attacks are very severe and come on without obvious cause in the lower part of the abdomen. When I first saw him in April, 1914, he was having as many as two a day. An X-ray examination showed an extraordinary abnormality of his colon; the whole of it was situated on the left side of the abdomen, the end of the ileum passing downwards on the right side to join the cæcum, which was in the left side of the pelvis. It was thought that the symptoms might be due to appendicitis, so Mr. F. J. Steward operated and found the appendix was slightly diseased and was lightly adherent in the pelvis. The cæcum had a very large mesentery. The appendix was removed, and the patient remained well until the end of July; since then he has had an occasional slight attack of pain, but never as severe as before the operation.

A second X-ray examination showed that the intestinal condition was unaltered, and that there was no stasis.

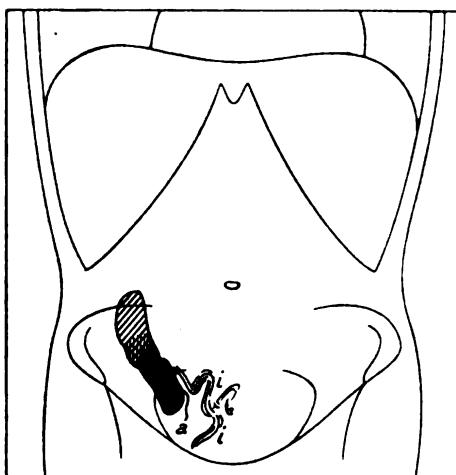
I am unable to explain by what developmental process the colon should be in such an unusual position.



Case V : Colon situated entirely on the left side of the abdomen.

Case VI : Inflammation of Appendix which was said to have been removed.—Mr. M., aged 19, was operated upon when aged 5 for an appendicular abscess; the appendix was supposed to have been removed, but as the surgeon is now dead it was impossible to obtain confirmation of this. He remained perfectly well until he was aged 12, when he began to have attacks of abdominal pain. At first there were not more than two a year, but during the last six months a week has rarely passed without one or two attacks. They generally last only ten minutes, but occasionally as long as three hours. They may occur at any time, but are especially likely to be brought on by strenuous exercise; they have sometimes followed an hour or an hour and a half after a meal. The pain is always situated in the neighbourhood of the umbilicus, but on one recent occasion it was followed by a less severe pain in the right iliac fossa. The pain is often very severe; it develops gradually but disappears suddenly. The bowels are regular. Examination showed that there was some tenderness in the right iliac fossa. With the X-rays I found that the stomach, which was somewhat atonic, emptied itself within six hours of the barium meal, nothing having been

eaten in the interval; an abnormally large proportion was then present in the end of the ileum, the cæcum and ascending colon being also visible. A shadow, which looked as if it might be the appendix, was visible between the end of the ileum and the cæcum. Three hours later only a small quantity of barium was left in the ileum, the rest being in the cæcum and ascending colon, none having passed beyond the hepatic flexure. The appendix was now clearly visible, and it was found to be extremely tender, the end of the ileum and the cæcum being entirely free from tenderness. The appendix was quite movable, and the cæcum, which dipped into the true pelvis on lying down, could



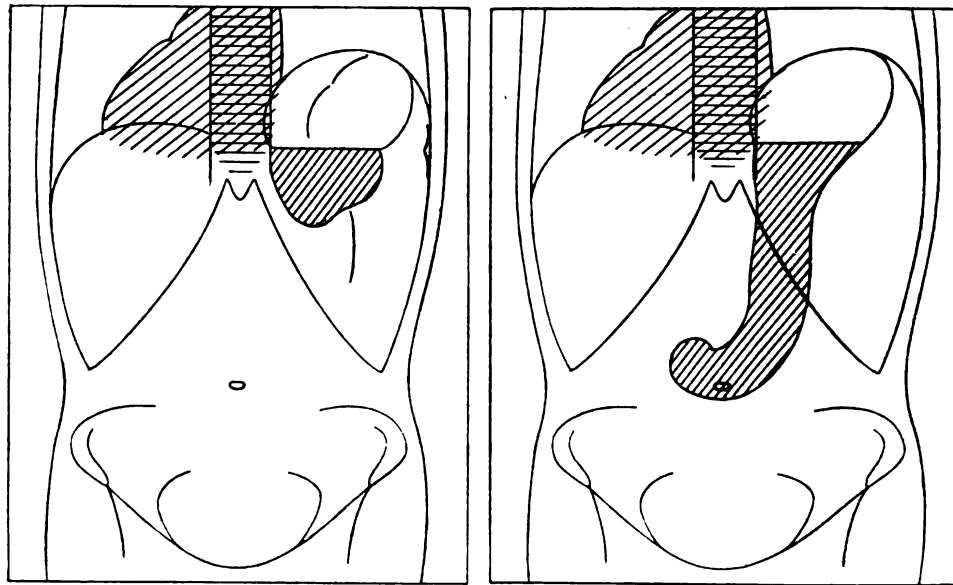
Case VI: Inflammation of appendix, which was supposed to have been removed. Tracing taken nine hours after barium meal. *a*, appendix; *i*, end of ileum.

be raised about $1\frac{1}{2}$ in. by deep palpation. The appendix remained the only tender point, even when it was moved a couple of inches from the position in which it was first seen, so that it was clear that the tenderness was due to the appendix itself, and was not a referred muscular tenderness.

Shortly afterwards Mr. Warren Low removed the appendix, which showed evidence of chronic inflammation. Its terminal quarter of an inch was completely separated from the rest by a short fibrous cord. The patient has had no return of symptoms.

Case VII: Heart pushed over to the Right Side of the Chest by Dilated Splenic Flexure.—A lady, aged 50, had suffered from severe constipation for many years, and on one occasion had gone twenty-six days without an action. I found that her heart was situated entirely on the right side of the chest, its outer border being 3 in. from the middle line, but her medical attendant was quite certain that the last time he examined her some years before it was in a normal situation. Neither physical examination nor the X-rays showed the presence of anything in the right side of the chest which could have drawn the heart over, or on the left side of the chest which could have pushed it over, but the highest point of the left side of the diaphragm reached the level of the third costal cartilage, the right side being only on the level of the fourth intercostal space, whereas the diaphragm is normally at the level of the fifth costal cartilage, the right dome being slightly higher than the left. This abnormal position was due to an enormous dilatation of the splenic flexure; the constipation was found to depend entirely upon delay in the dilated part of the colon. There was no evidence of any organic obstruction; the stomach also showed a somewhat remarkable condition, which was apparently the result of pressure by the dilated splenic flexure. When the barium meal was first taken, it all accumulated in the fundus and gave the impression that there was an organic obstruction in the centre of the stomach leading to an hour-glass condition (*a*). That this was not really the case was shown by the fact that a second barium meal on a later day passed without difficulty through the whole stomach, the appearance of which was normal in every way (*b*). Massage of the dilated colon, which the patient could bring within reach by breathing deeply, resulted in considerable improvement, so that she was able to keep her bowels regular with six or eight senna pods and a tablespoonful of paraffin every night. Her general health also improved, but there has up to now been no change in the position of the heart.

I have been able to find no other recorded case, in which the heart was pushed over to the right side as a result of dilatation of the splenic flexure.

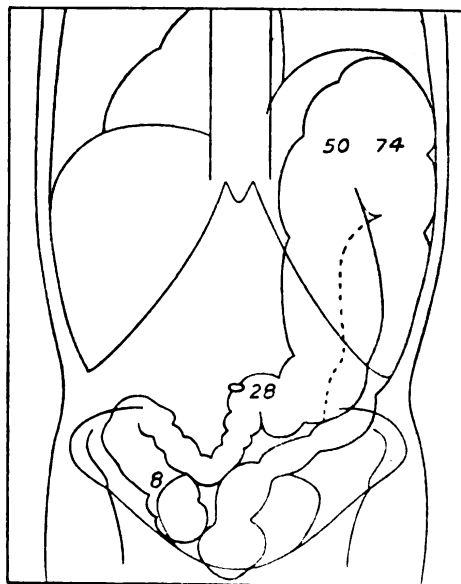


(a)

Stomach with central spasm.

(b)

Stomach with spasm relaxed.

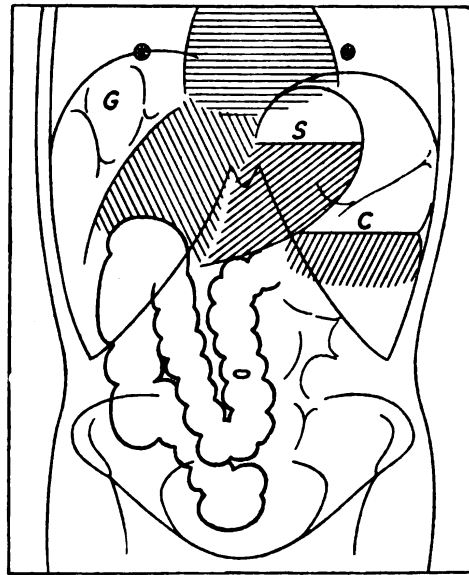


(c)

Composite drawing of colon. The numbers represent the hours after the barium meal at which different points were reached.

Case VII: Heart pushed over to the right side of the chest by dilated splenic flexure.

Case VIII : Hirschsprung's Disease in an Adult without Symptoms.—Mr. K., aged 35, 6 ft. 7 in. in height and weighing 15 st., had always enjoyed good health and was a noted athlete. Whilst in England and on the East African coast, where he is an official and where the climate is not very trying, he is perfectly well, his bowels being opened twice a day. He has to make frequent expeditions to the interior, where the heat is very great, and he perspires excessively; at the same time his meals are irregular, and he is unable to obtain green vegetables, so that, although he rides for five or six hours a day, he at once becomes constipated. When his bowels have not been opened for four or five days he



Case VIII : Hirschsprung's disease in an adult without symptoms.—S, upper level of fluid contents in stomach; C, upper level of fluid contents in dilated segment of colon; G, gas in colon above liver.

takes gr. iv calomel in the evening and an ounce of salts in the morning; a normal stool results without any pain. He consulted me in order to know what steps he should take in order to keep his bowels regular whilst on his expeditions.

My examination showed that his colon was abnormally long and dilated, but the chief dilatation was beyond the middle of the transverse colon. The exact anatomical relations could not be made out, but an enormous dilated sac of colon pushed up the left side of the

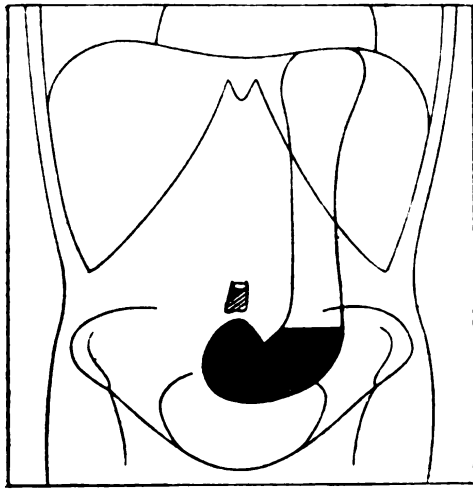
diaphragm and contained semi-fluid fæces, the upper surface of which could be clearly seen distinct from and below that of the gastric contents. A part of the dilated colon was also above the liver, so that the gas-containing bowel could be clearly seen under the right side of the diaphragm. A finger inserted in the rectum passed straight into an enormously dilated sac. In spite of this remarkable condition there was no intestinal stasis.

This is apparently a case of Hirschsprung's disease, in which the hypertrophy of the intestinal musculature has produced compensation.

Case IX: Atonic Dilatation of the Stomach cured by Treatment.—

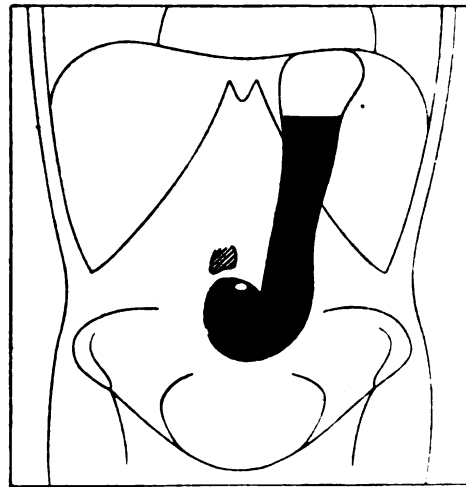
Mr. H., aged 45, had an attack of acute indigestion after a meal of oysters and beer at Easter, 1913. Since then he had suffered from a sense of fullness after meals, which changed into a hot burning sensation in the course of a couple of hours. In January, 1914, he began to lose weight, and when I first saw him in July he had lost 2 st. He felt slack and complained of giddiness in the morning. There was no tenderness nor rigidity, and an X-ray examination showed that he had well-marked atonic dilatation of the stomach. He was treated by rest in bed with an absolutely dry diet, all fluid being given by rectum; at the same time his stomach was massaged. Improvement was very rapid, and the X-rays showed that the tone of his stomach returned to normal at the same time as his weight increased and his symptoms disappeared. There has been no return of symptoms.

Case X: Gastropotosis cured by Treatment.—An unmarried lady, aged 52, suffered from indigestion, severe constipation, and general weakness. The tone of her stomach was found to be normal, but a considerable degree of ptosis was present (*a*), which was due to the very flabby condition of her abdominal muscles. She was given an abdominal support and had regular massage and exercises, with the result that the condition of her muscles steadily improved in spite of the fact that she had no rest in bed. The position of her stomach had risen to normal when I saw her fourteen months after the first examination (*b*). She was now able to do without aperients but still used a little paraffin. She then gave up the abdominal support but continued to have massage at intervals, with the result that four months later the stomach had actually become slightly hypertonic, the greater curvature being just above the umbilicus (*c*). She was now also able to get her bowels open without even using paraffin.



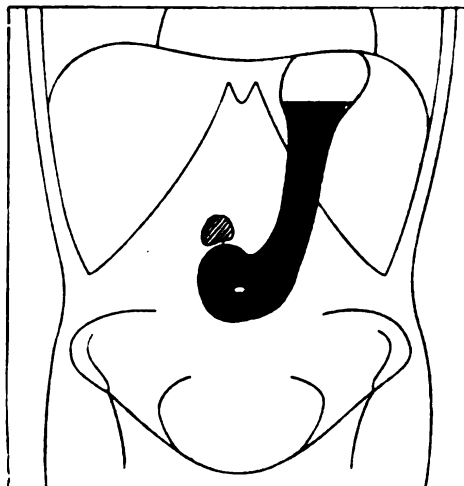
(a)

July 17, 1914.



(b)

July 21, 1914.

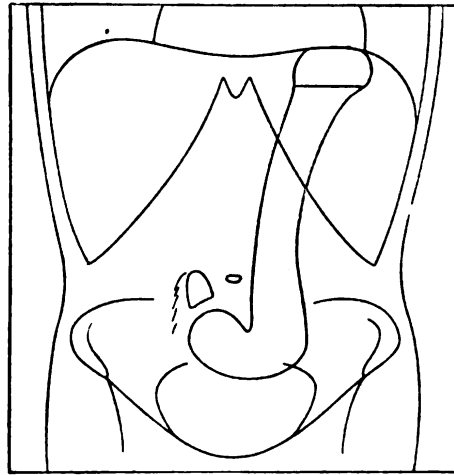


(c)

September 16, 1914.

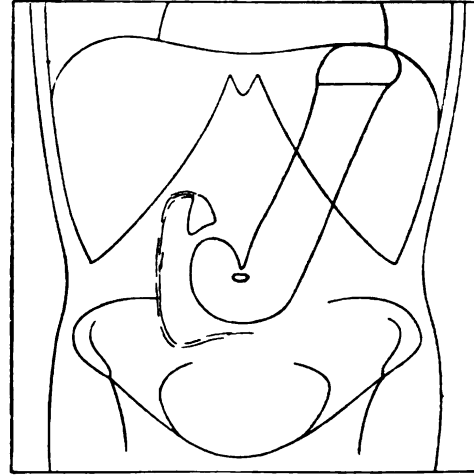
Case IX : Tracings showing result of treatment of atonic dilatation of the stomach.

Case XI: Ptosis of the Colon with Severe Intestinal Stasis and Symptoms of Intoxication cured by Rest and Massage.—A girl, aged 14, had suffered from constipation since infancy. It had been getting worse



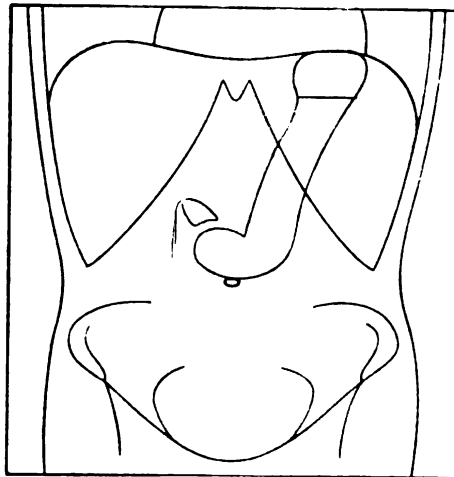
(a)

January 21, 1913



(b)

March 25, 1914.

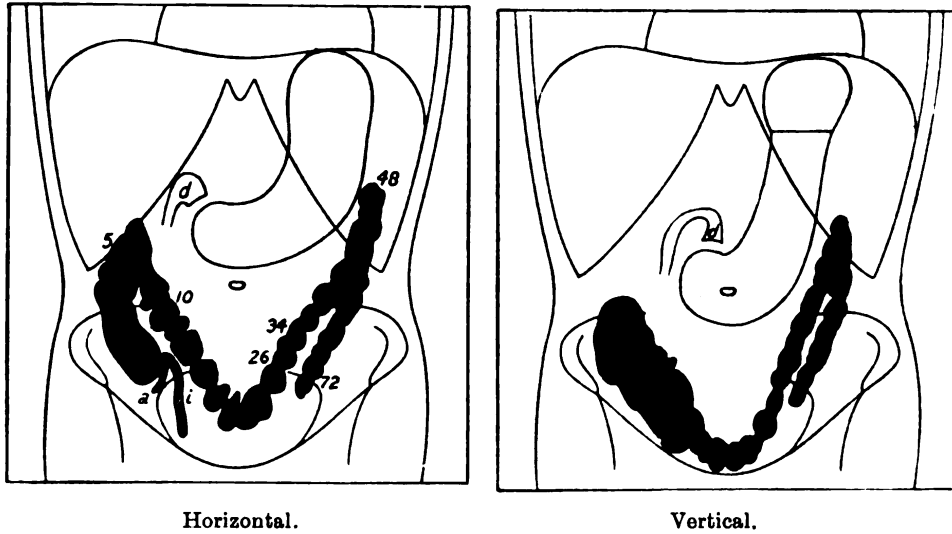


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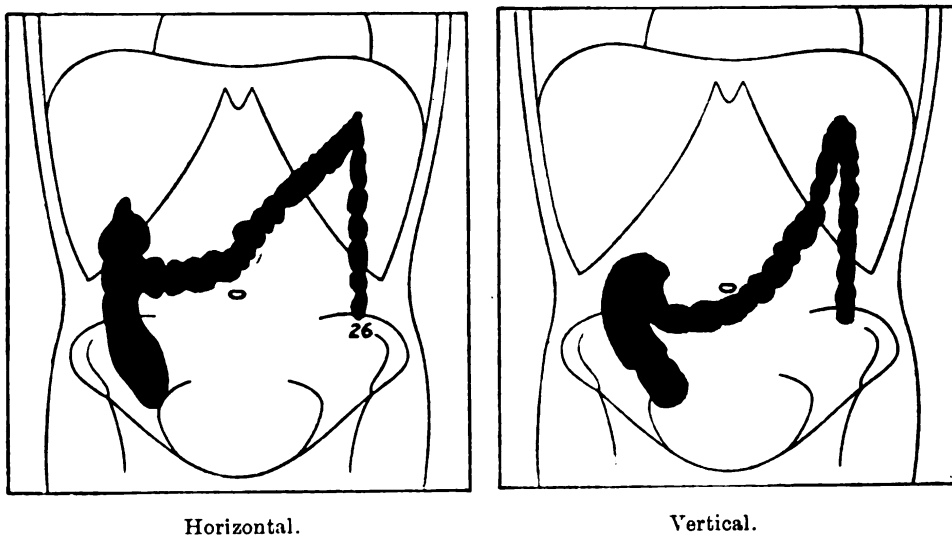
July 21, 1914.

Case X: Gastropotosis cured by treatment.

the last few years, during which she had five attacks of faecal obstruction. Her stools constantly contained mucus. She suffered from perpetual



(a) September 10, 1913. Composite tracings showing outline of stomach and duodenal cap (*d*), and shadows of terminal ileum (*i*), appendix (*a*), and colon. The ileum was not empty until forty-eight hours had elapsed, and the cæcum was still full after seventy-two hours. The numbers represent the hours after the meal at which different points were reached. Weight, 7 st. 12 lb.

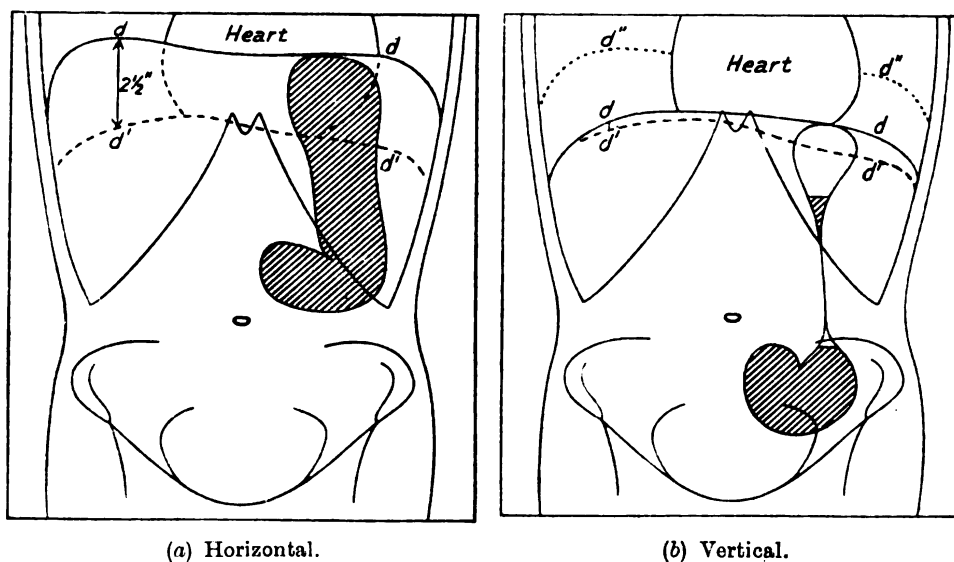


(b) October 29, 1913. Tracings taken twenty-six hours after barium meal; some of the barium had already been passed. Weight, 9 st. 7 lb.

Case XI: Ptosis of colon with severe intestinal stasis cured by rest and massage.

headaches, pains in her limbs and body, and she had an exceedingly small appetite. Her breath was always foul and her tongue furred; she was very depressed and irritable. An X-ray examination showed that there was no stasis of the stomach, but a slight degree in the end of the ileum. There was an extreme degree of stasis through the whole colon. The transverse colon was very low even in the horizontal position. The ptosis was probably due to the accumulation of large quantities of faeces in it, because no other organ had dropped with it. The intestinal stasis, the ptosis of the colon, and the toxic symptoms were so severe that a continuation of medical treatment was only advised as a forlorn hope, and it was expected that a colectomy would ultimately be required. The patient was kept in bed for five weeks. Every morning after her bowels had been opened she was given abdominal massage by a nurse, who had been shown under the X-rays how she could manipulate the colon into its normal position. She was ordered a tablespoonful of liquid paraffin after each meal and an enema of warm water every morning. A pint and a half was used at first, but the quantity was reduced every day by half an ounce. She was made to take full diet with extra milk and cream. She improved with remarkable rapidity; and when seen six weeks after the beginning of treatment her weight had increased from 7 st. 12 lb. to 9 st. 7 lb.; she looked and felt better than ever before, and her mother said her character had quite changed, as she was brighter and better tempered than she had been for years. During the last fortnight of treatment the bowels had been opened naturally every morning; she still took half an ounce of liquid paraffin three times a day, and a small enema was given each evening with very little result, showing that the natural action in the morning was sufficient. The enemata were therefore discontinued, and an X-ray examination a week later, after she had given up the paraffin for three days, showed that there was no longer any ileal or colic stasis, some of the barium sulphate being passed the morning after the barium breakfast. The transverse colon had risen to its normal position, dropping only just below the umbilicus on standing; before the treatment began, its lowest point, measured orthodiagraphically, was 4 in. below the umbilicus on standing. Four months after she had got up she was getting her bowels open with a little paraffin and aloin: she had gained a few more pounds in weight, and her general health continued to be excellent.

Case XII: Dyspnœa due to Ptosis of the Diaphragm in a Case of General Visceroptosis.—A lady, aged 50, had suffered for a long time from neurasthenic symptoms accompanied by indigestion and shortness of breath. An X-ray¹ examination showed that she had an "orthostatic hour-glass stomach," the contraction being due to the drag upon the stomach in the erect position, as it disappeared when she lay down. In a horizontal position the diaphragm was normal and its respiratory excursion was $2\frac{1}{2}$ in. In the erect position it dropped almost into the position of extreme inspiration, so that even with a great effort it only descended $\frac{1}{4}$ in. Consequently diaphragmatic respiration was impossible



Case XII: Ptosis of diaphragm in case of general visceroptosis.—Reproductions of tracings drawn orthodiagraphically, showing ptosis of diaphragm, heart, and stomach; the stomach has an "orthostatic hour-glass contraction" in the vertical position. d , diaphragm in position of rest; d' , diaphragm on maximum inspiration; d'' , diaphragm when abdomen is compressed; $d-d'$ in (a) = $2\frac{1}{2}$ in.; $d-d'$ in (b) = $\frac{1}{4}$ in.

in the erect position, though normal on lying down. The abdominal muscles were exceedingly feeble, the visceroptosis being clearly due to this. When she was given an abdominal support the diaphragm was pushed up, so that the normal respiratory excursion became possible and the dyspnœa disappeared.

¹ *Proceedings*, 1912, v (Med. Sect.), p. 60.

I believe that a similar condition is a not uncommon cause of dyspnœa in individuals with weak abdominal muscles. Many patients suffering from heart failure, who are well whilst they are resting in bed, but are unable to take any exertion when they get up, are relieved by using a support for their weak abdominal muscles, so that the diaphragm can be maintained in its normal position.

DISCUSSION.

The PRESIDENT said the Section was very much indebted to Dr. Hertz for this exhibition; the series was a most interesting one. What had relieved his mind most was the demonstration that medical methods were effective in cases of intestinal stasis, remembering the severe operations which had been devised for the condition.

Dr. HERNAMAN-JOHNSON reminded the meeting that some of Dr. Hertz's excellent results were obtained by putting the patients to bed for some time, and by using some kind of mechanical support. In the case of people who were poor and could not lie up away from their work, he had found a useful alternative in stimulation of the abdominal muscles by the sinusoidal current rhythmically interrupted. Where that was not available, and in less severe cases, ordinary faradism could be used, interrupted by a metronome. One might or might not combine this with a mechanical support, or with the administration of cascara and paraffin. In the latter event the patients usually complained of diarrhœa after the first two or three days, and it was then advisable to discontinue the paraffin and cascara. He did not offer these suggestions as a rival treatment, but as an alternative one when the patient could not afford to lie up; it was desirable also to restore the tone of the muscles, striped and unstriped, so that an abdominal belt might be dispensed with as soon as possible. The results of a six or eight weeks' course seemed to be lasting; he had followed up cases three years later and found there had been no return of the trouble. Relapse might, however, occur if the patient returned to an unhealthy way of living. No subject of stasis should be subjected to the severe operation until the treatment mentioned by Dr. Hertz and himself had been given a good trial.

Dr. BARCLAY desired to corroborate what Dr. Hernaman-Johnson had said; he had seen such cases pick up extraordinarily under the application of massage, exercises, and the use of the sinusoidal current.

Dr. REGINALD MORTON said he could bear testimony to the value of the electric current in these cases of stasis, particularly the slow sinusoidal current, which should be reduced to a rate of one impulse per second, so long as they were strong enough, because the time element in the contraction of

unstripped muscle was a slow one, and was still further reduced when there was a loss of tone in the muscle concerned. He, like the President, had been very glad to hear the testimony of Dr. Hertz, because as an old-fashioned person he considered that every person retained some elementary rights concerning his own digestive tract, and that he need not necessarily hand it over to the surgeon. One had hesitated, remembering what the surgical treatment meant, to tell a patient he had intestinal stasis.

Mr. BOKENHAM said he would like to add his testimony to that of Dr. Morton and others, with regard to the great value of stimulation of the abdominal muscles by very slow rhythmic interruptions of the faradic current. Many years ago he was uncertain as to what form of current was the best, and in some cases he used, apparently with good results, currents of high frequency; but for some years he had been in the habit of treating cases of intestinal stasis with very slow interrupted currents, and with excellent results. The "Morton wave" current obtained with an efficient static machine running at a slow speed, the discharges being kept adjusted to the limit of easy tolerance, seemed in certain instances of special value.

Dr. JORDAN desired to point out that operative procedures did not constitute the routine treatment of chronic intestinal stasis. Resort to operation was reserved for those cases in which other means of treatment were unavailing. As a knowledge of stasis became more general, and patients came under proper treatment earlier, there would be even fewer cases in which operative interference would be found necessary. He had been much interested in the fine series of slides which Dr. Hertz had shown.

Glycosuria in Chronic Intestinal Stasis.

By ALFRED C. JORDAN, M.D.

DIABETES mellitus, ever since it was first recognised, has been a source of ardent research, and a subject of deep interest. An enormous literature has been built up, and many ingenious theories devised in the desire to explain its causes.

In a mass of disconnected observations there stand out prominently three experimental methods of producing glycosuria: Firstly, Claude Bernard's "diabetic puncture" of the floor of the fourth ventricle of the brain; secondly, the administration of certain drugs, especially phloridzin; and thirdly, the extirpation of the pancreas. Of these three classes of experiment, the third—that of removing the pancreas by operation—is seen at once to be by far the most important as regards the light it throws upon the ætiology and pathology of diabetes mellitus.

Claude Bernard's puncture causes only a transitory glycosuria; drug diabetes passes off as soon as the drug is left off; but the extirpation of the pancreas—say in a dog—is followed after a day or even after a few hours by pronounced glycosuria, which increases to the third day, and continues till the death of the animal from inanition in about four weeks. In other essential respects the disease resembles diabetes mellitus. There is polyuria. The blood shows a marked increase of sugar (polyglycæmia). On the approach of the final stage the excretion of sugar begins to diminish, although food is being taken, and a few days before death the sugar may disappear from the urine. When the sugar begins to diminish we find appearing in the urine (just as in diabetes mellitus) acetone, aceto-acetic acid, and β -oxybutyric acid.

Obviously, then, this discovery of the effect of extirpating the pancreas is one of extreme importance in the study of diabetes, and this is not diminished by the circumstance that the new fact has not led to a specific cure for the disease. It is easy to find reasons why a cure is not effected by feeding on pancreas substance, or by administering pancreas "tabloids," &c.; short of a specific cure, however, the new knowledge of the relation of the pancreas to persistent glycosuria is leading to important results, not only from the pathological but also from the therapeutic standpoint.

All are agreed that diabetes mellitus is not always due to the same cause. The pancreas shows no lesion in every case. But there is definite disease of the pancreas, discoverable post mortem, in about 75 per cent. of the cases. It is hardly necessary to state the converse, that disease of the pancreas is not always accompanied by glycosuria. Experimental extirpation shows that if one-fourth of the pancreas be left there will be no glycosuria. Hence we should not expect to get glycosuria unless three-fourths of the pancreas were destroyed or put out of gear. Cammidge finds that 7.4 per cent. of patients in whom disease of the pancreas can be shown to exist pass sugar in their urine. Cammidge's reaction indicates insufficiency of the glycogenic function of the pancreas; it shows pre-diabetic changes.

THE PANCREAS IN CHRONIC INTESTINAL STASIS.

We have now to consider the bearing of the preceding remarks on the subject of the present communication. The main facts of chronic intestinal stasis are now well known. The undue retention of the intestinal contents in the lower coils of the ileum (ileal stasis) leads to

the invasion of these coils by microbes from the cæcum. The lower ileal coils are sterile (or nearly so) in health, and they are not able to deal with large doses of bacterial toxins; the result is a general toxæmia with its well-known train of symptoms.

These over-loaded lower ileal coils produce a constant pull upon the mesentery when the patient is upright. If the patient be fairly robust, a thickening forms in the mesentery at the point where the pull is greatest, and this thickening is the beginning of a "Lane's ileal kink." If the patient be feeble the mesentery yields, and the attachment of the mesentery to the posterior surface of the abdomen slips down. In this way the whole of the small intestine is pulled downward, and a kink is produced at the duodeno-jejunal junction where the unsupported jejunum arises from the fixed end of the duodenum. Behind this kink the duodenum becomes distended, and the distension is readily shown on X-ray examination with bismuth; the exaggerated duodenal peristalsis is also seen. At a somewhat later stage the distended and congested duodenum is invaded by bacteria, which ascend the small intestine from the lower ileum. Many untoward results may follow: duodenal ulceration; infection of the gall-bladder by way of the common bile-duct, leading to cholecystitis and gall-stones; and chronic pancreatitis through infection of the pancreatic duct. The general toxæmia also causes changes which have become familiar to those who have followed Sir Arbuthnot Lane's work. One of the earliest and most constant of these in woman is shown in the breasts, which become nodular. This chronic mastitis begins in the upper and outer quadrants of the breasts, and often goes on to involve the whole breast, and then advances to the stage of chronic cystic disease, and finally it may become cancerous. The changes in the pancreas are analogous, but are undoubtedly more severe, since the pancreas is subject not merely to the general toxæmia but to a direct microbic invasion from the duodenum. At operations on the subjects of chronic intestinal stasis, the pancreas is found to be nodular, while it is smooth and soft in healthy subjects. There can be no doubt that the chronic pancreatitis yields to successful treatment of the stasis, just as we may observe the nodules in the breasts disappear with the relief of stasis, whether by operation or by treatment.

STASIS IN GLYCOSURIC SUBJECTS.

There is much evidence that in glycosuria we have usually to deal with the subjects of chronic intestinal stasis. Indican is found in the urine, and also xanthin bases and tyrosine. Frequently we find the glycosuria associated with chronic gastro-intestinal disorders, and these have existed for years in many of the cases. One of the most universal indications for treatment in glycosuria is to relieve the chronic constipation which exists.

Transitory glycosuria is well known to occur in the subjects of rheumatoid arthritis and of Graves's disease, and in chronic dyspeptics. There have been many cases of glycosuria in the subjects of "appendicitis." These four complaints are among the results of chronic intestinal stasis.

CASES.

My attention was first drawn to the connexion between glycosuria and chronic intestinal stasis three and a half years ago in a tragic way. A young officer, aged 22, was sent to me for an investigation of the alimentary tract. He had been perfectly well till four months previously when he had an attack of "appendicitis." An abscess formed in the right iliac fossa, and this was opened at Gibraltar and a pint of pus was let out. A small leaden shot came out with the pus; this was thought to have been swallowed with game on some previous occasion. Phlebitis of the left leg came on a fortnight after the operation, with thrombosis of the femoral vein. This kept him in bed seven weeks. The wound healed except for a small stitch sinus, and he made a good recovery. Ten days before coming to me he became constipated and suffered from flatulence, passing wind both by the mouth and by the rectum. There was no pain.

The most striking result of the X-ray investigation with bismuth was the discovery of extreme delay in the lower end of the ileum, the last coils of which were enormously dilated. Most of the bismuth had reached the lower end of the ileum after four and a half hours, but there was still bismuth in the ileum after forty-nine hours (figs. 1 to 3). The dilated terminal coil of the ileum lay in front of the cæcum. On pushing this coil toward the middle line of the body the ileo-cæcal entrance was uncovered, and the appendix was shown lying beneath the cæcum (fig. 2). Subsequently there was found to be great

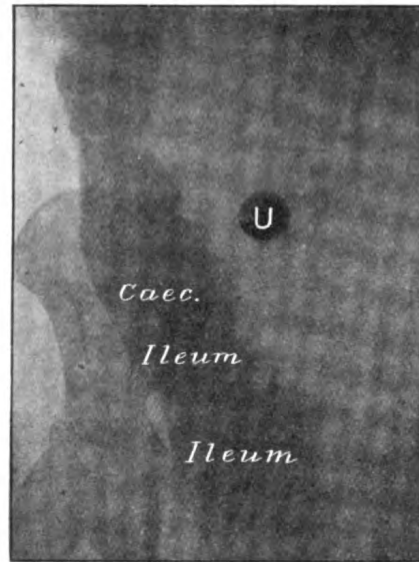


FIG. 1.

Taken on the couch eleven hours after a bismuth meal, in an officer, aged 22, who died in diabetic coma a few days later. There is a large amount of bismuth in the lower coils of the ileum, and the terminal coil of the ileum is greatly dilated. There is a good deal of bismuth in the cæcum and ascending colon. U, the umbilicus marked by a penny.

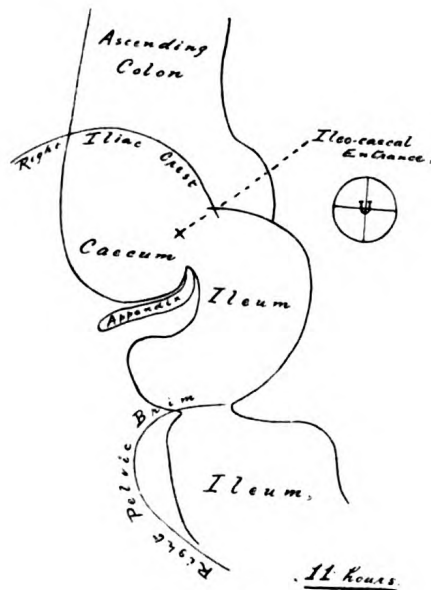


FIG. 2.

Diagram showing the position of the parts seen in fig. 1, when the cæcum was raised.

retardation in the passage of the bismuth through the large intestine, practically the whole of it being still in the transverse colon after ninety-eight hours (fig. 4).

He was admitted to a nursing home with a view to operation. On examining his urine there it was found, to the surprise of all concerned, to contain a large percentage of sugar. He went downhill very rapidly, and died in a few days of diabetic coma, no operation having been performed.

Since then I have often come across slight or transitory glycosuria in the subjects of stasis, but more recently I had another striking case which ended as tragically as the first.

A woman, aged 47, had been the subject of Graves's disease at the age of 30. There had been a large goitre, exophthalmos, and tremors. This complaint had yielded to treatment after six months; the chief features of the treatment were rest in bed, diet, and aperients. She was subject to chronic rheumatism, but was in fairly good health till five months before I saw her for Sir Arbuthnot Lane and Dr. James Allan. She then began to suffer from thirst and a bad taste in the mouth. There was loss of appetite and occasional nausea, and she began to waste. She became constipated, though she had not obviously been constipated before. The urine was found to contain a large percentage of sugar.

The following are the chief points of my examination: The stomach was large and exhibited active peristalsis. The pylorus was normal in form, but showed spasm. After a few minutes there was a partial relaxation of the pyloric sphincter, and the duodenum filled with bismuth. It was dilated, and showed strong "writhing" contractions with repeated regurgitation of the bismuth from the third to the second part of the duodenum, only traces of bismuth having entered the jejunum at the end of fifteen minutes, in spite of the powerful duodenal peristalsis (fig. 5). At the end of six hours half the bismuth was still in the stomach, half was in the lower coils of the ileum. No bismuth had entered the cæcum. At the end of nine hours there was still much bismuth in the stomach; a good deal had now entered the cæcum and the ascending colon, and the terminal coil of the ileum was shown. It was hypertrophied, feeling like a thick cord; its course was tortuous, and it was firmly tied down in the right iliac fossa at a point about 4 in. from its entrance into the cæcum (fig. 6). The appendix was shown immediately beneath the cæcum, and appeared healthy. The following day, twenty-three hours after taking the bismuth, there was no longer

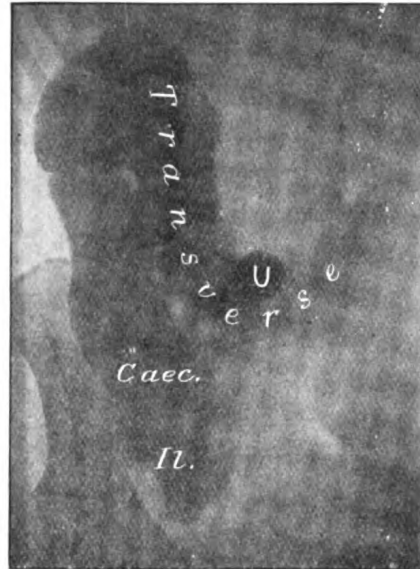


FIG. 3.

Taken thirty-five hours after the same bismuth meal. There is still bismuth in the lower end of the ileum, and very little bismuth has reached the middle of the transverse colon.

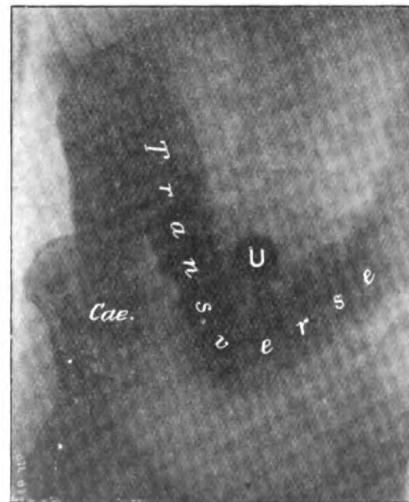


FIG. 4.

Taken ninety-eight hours after the same bismuth meal, showing great stasis in the large intestine. Nearly all the bismuth is still in the transverse colon, which has dropped.

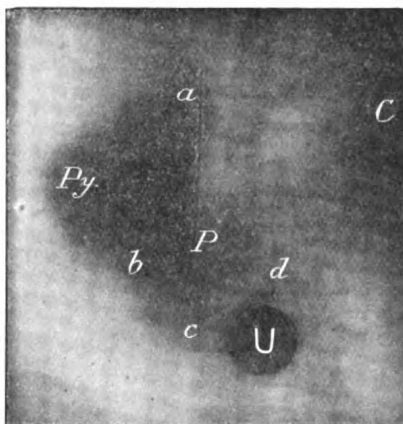


FIG. 5.

Taken on the couch after a bismuth meal, in a woman, aged 47, who died shortly afterwards in diabetic coma. The stomach was large, and showed active peristalsis. There was pyloric spasm. The duodenum was dilated, and showed strong "writhing" peristalsis, typical of chronic intestinal stasis; there was repeated regurgitation of the bismuth from the third to the second part of the duodenum, only traces of bismuth having entered the jejunum at the end of fifteen minutes in spite of the strong duodenal peristalsis. *C, P*, the cardiac and pyloric portions of the stomach; *a, b, c, d*, the four parts of the duodenum; *Py*, the pylorus; *U*, the umbilicus.

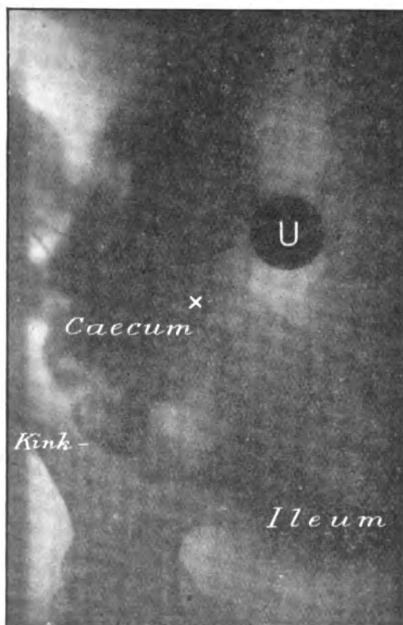


FIG. 6.

Taken on the couch nine hours after the same bismuth meal. There was still much bismuth in the stomach. Some had reached the caecum and the ascending colon. There is a well-marked, typical ileal kink ("Lane's kink") tying down the terminal coil of the ileum in the right iliac fossa. The terminal coil is thick-walled and tortuous. The appendix, seen under the caecum, appears healthy.

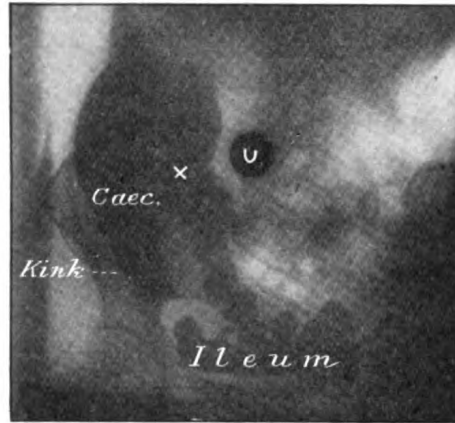


FIG. 7.

Taken twenty-three hours after the same bismuth meal, showing the ileal kink as before with extreme ileal stasis, the lower ileal coils being still well filled with bismuth.

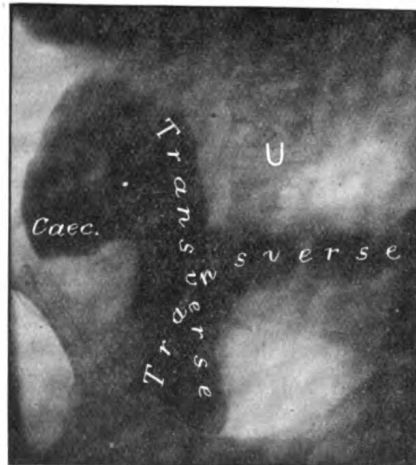


FIG. 8.

Taken forty-seven hours after the same bismuth meal—i.e., at a time when all the bismuth should have been passed. The transverse colon has dropped so as to form a loop in the deepest part of the pelvis, and no bismuth has advanced beyond the middle of the transverse colon. After ninety-five hours very little bismuth had got beyond the splenic flexure.

any bismuth in the stomach, but the lower ileal coils were still well filled with it, indicating extreme ileal stasis. The ileal kink was again shown (fig. 7). The cæcum and ascending colon were distended with bismuth; no bismuth had entered the transverse colon. After thirty hours all the bismuth was in the large intestine, and after forty-seven hours (at a time when all the bismuth would have been evacuated in a normal subject) none had advanced beyond the middle of the transverse colon. This organ took the extraordinary course shown in the skiagram (fig. 8), of dropping vertically from the hepatic flexure down to the pelvis, making a complete loop in the pelvis, and crossing the middle line of the body at a level far lower than normal. Even after ninety-five hours, nearly the whole of the bismuth occupied the long, tortuous transverse colon, only a little having entered the descending and iliac colon, and none having passed into the pelvic colon or rectum.

As in the case previously described, there is no question about the extreme degree of the stasis. Unfortunately, the end was as disastrous as in the other case. The patient was admitted to Guy's Hospital, and after a few days she died in diabetic coma, no operation having been possible.

No post-mortem examination was obtainable in either of the cases, but they are so striking that they compel attention, and leave no way of escape from the conclusion that there is a very definite relation between diabetes mellitus and chronic intestinal stasis.¹

Case of Peptic Ulcer of the Œsophagus.

By A. E. BARCLAY, M.D.

DR. BARCLAY (Manchester) described a case of peptic ulcer of the œsophagus which had been referred to him by Dr. E. M. Brockbank. She was a nervous girl, aged 18. She gave a history of having at one time brought up some blood, and that, from time to time, she had difficulty in swallowing. On examination, no obstruction to the passing of the food was noted, and the stomach appeared to be quite normal. On questioning her closely she indicated that it was after pieces of hard food had been swallowed that she had the pain. Accordingly she was given toasted bread crumbs, and in a few minutes

¹ See N. Mutch, "The Duodenum in Diabetes," *Practitioner*, May, 1915, p. 712.

she said that this had brought on the pain. On giving opaque food it was found that there was complete obstruction at the level of the seventh dorsal vertebra, which persisted for five or ten minutes at a time. The obstruction was clearly due to spasm, and it was probable that the crumbs irritated a small ulcer and set up the spasm. Œsophagoscopic examination by Sir William Milligan showed a small ulcer about $\frac{1}{4}$ in. in diameter.

The ulcer was treated by ionisation of zinc. A bobbin-shaped electrode on a wire, insulated with shellac except at the neck of the bobbin, was dropped into the stomach. The patient then took bread crumbs until the spasm came on. The bobbin was then easily pulled up till the obstruction was felt; applying more traction the top of the bobbin slipped through the spasm, and the neck was firmly gripped and held in position by the spasm itself in contact with the ulcer. With a large electrode on the arm a current of 10 ma. was passed from the positive electrode in the œsophagus for about ten minutes. There was a tendency for the spasm to relax, and the wire had to be held carefully to feel when this occurred, as the electrode almost at once got out of position, as was seen on the fluorescent screen. When the electrode was taken out there was a black mark on one side of the neck of the electrode showing the size and shape of the ulcer through which the current had passed. Relief of symptoms was almost immediate, and the patient was perfectly well for three months. Some faulty teeth were then extracted and another ionic treatment given, with the result that the patient remained perfectly well for a year. A letter had just been received, however, saying there had been a recurrence. It was proposed to repeat the procedure but with rather stronger current.¹

¹ 20 ma. were passed for ten minutes. The blackening of the electrode showed that the ulcer was about $\frac{1}{4}$ in. in diameter, and situated on the right side of the œsophagus—i.e., in exactly the same position as before. A fortnight after the treatment the patient can eat practically anything and has no pain at all.

Demonstrations.

By A. E. BARCLAY, M.D.

SLIDES were shown illustrating :—

(1) Hour-glass condition following the wounding of the stomach from a swallowed pin. The spasmodic hour-glass condition lasted several weeks.

(2) Aerophagy with marked eructations from the swallowing of air into the œsophagus, which was shown distended with the air.

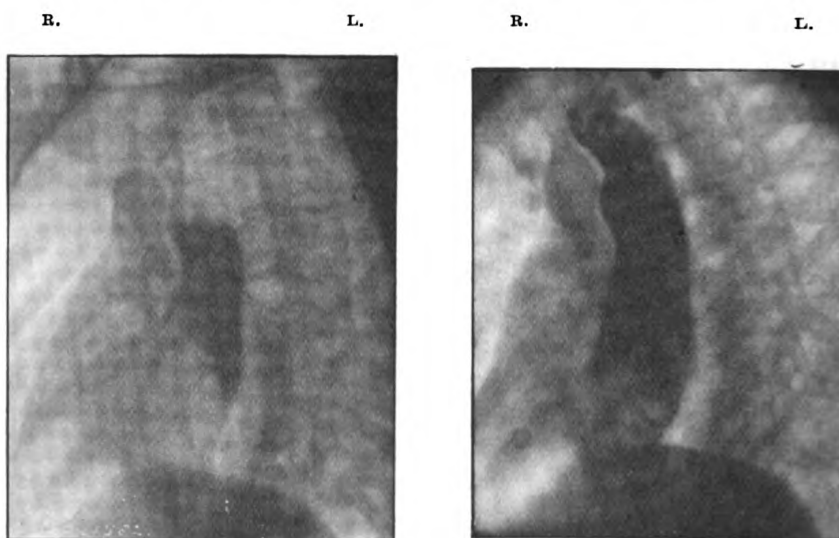


FIG. 1.

FIG. 2.

Figs. 1 and 2.—Obstruction of the œsophagus. Note the ragged outline of the lower part of the shadow. It was thought that this was due to the inroads of a growth. The second radiogram, taken a little later, indicates clearly that the opaque food is canalising the retained ordinary food in the dilated œsophagus. The case was one of cardiospasm in which the patient had "educated" the œsophagus to tolerate large quantities of food.

(3) Illustrating the mechanism of the production of the recurrent borborygmi from air in an atonic stomach.

(4) Illustrating how food retained in the lower end of the œsophagus may give a strong suggestion of extensive growth invading the œsophagus (figs. 1 and 2).

(5) An abnormally mobile liver associated with Hirschsprung's disease (figs. 3 and 4).

(6) Gas-containing abscess of the peritoneal cavity.

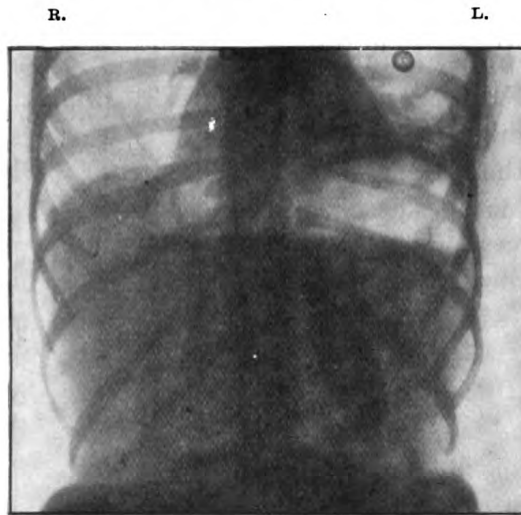


FIG. 3.

With the patient standing. A large air-space was seen, extending from the left side to the nipple line on the right and bounded below by a fluid line that splashed when the patient was shaken. A few mouthfuls of the opaque food could be seen in what appeared to be a normal stomach *behind* this air-space and fluid.

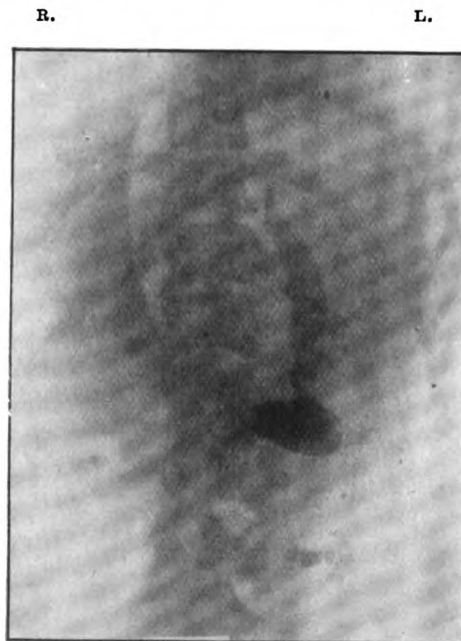


FIG. 4.

With the patient lying down, the air-space could be seen as a bubble, just below the abdominal wall and spread out *over* the stomach. It was the lateral view of the patient that showed the air and fluid in this cavity were subperitoneal. The pus and gas that were evacuated were extremely offensive. The case had been a most obscure one and, in fact, was referred to the X-ray Department for examination of the kidneys. With the information of the X-ray examination one was able to obtain a definite history of dyspepsia and a sudden acute pain as the onset, presumably due to a perforation.

(7) Hair-ball in the stomach. The patient, a girl, aged 28, was referred by Dr. Ramsbottom in June, 1913. Clinically, the case was an obscure abdominal tumour, presumably an enlarged spleen or in connexion with the pancreas, although the possibility of some rare gastric tumour was considered. As is usual in the case of abdominal tumours, nothing abnormal was noted on screening the patient; although the tumour could be felt, it could not be seen, and was apparently of the same density as the abdominal tissues. The examination was conducted with the patient in the erect posture, and in all such cases bismuth food is given in order to establish the relationship of the stomach and other parts of the alimentary canal to the tumour. In this case the bismuth flowed into the stomach, and then began to canalise down the greater curvature (fig. 5), showing very clearly that the tumour was not the spleen, otherwise the greater curvature would have been displaced to the inner side of it. At this stage the appearances were those sometimes seen in advanced cases of carcinoma, involving the whole of the pyloric end and lesser curvature of the stomach. Presently, however, as more food was given, the shadow extended down the lesser curvature, apparently around the mass, which was evidently therefore not to the inner side of the stomach, but either inside, in front, or behind it. A little manipulation and rotation of the patient quickly demonstrated that the mass displacing the bismuth (showing as a lighter area in the midst of the dark shadow of the bismuth) was actually within the stomach. By means of palpation it was easy to demonstrate, not only that it was within the stomach, but also that it was freely movable within the stomach, and fig. 6 shows how the tumour could be displaced, the top of it rising above the level of the bismuth food, and showing as a rounded shadow in the clear air-space in the fundus of the stomach. In order to demonstrate the nature of the tumour still more clearly the fundus of the stomach was distended with CO₂, and into the large "Magenblase" thus obtained the hair-ball was pushed up (fig. 7). It gave a heavy shadow, because of the coating of bismuth it carried up with it. The diagnosis was therefore so complete that not only could the nature and shape of the tumour be predicted, but also its size, which was given as 9 in. long by 3 in. wide, while the predicted shape of the tumour corresponded almost as closely (fig. 8). The case was referred to Mr. Burgess, who enucleated the mass and the patient made an uninterrupted recovery. The hair had apparently been swallowed when she had scarlet fever twenty years previously. She denied having swallowed any hair to her own knowledge at any time.



FIG. 5.



FIG. 6.

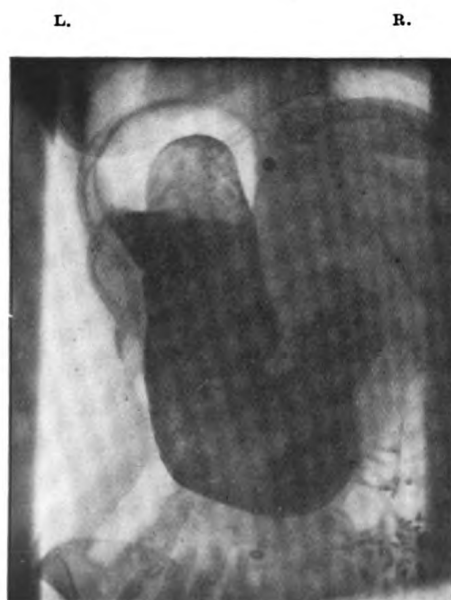


FIG. 7.



FIG. 8.

Hair-ball in the stomach.

**Case of Hernia of the Stomach through the Diaphragm in
a Child, aged 9.**

By W. J. S. BYTHELL, M.D.

THE following notes upon this case of hernia of the stomach through the diaphragm are of interest from both the surgical and the radiographic points of view.

The patient, a boy, aged 9, was admitted to the Manchester Children's Hospital on January 6, 1914. The previous history (which was obtained with difficulty) consisted of attacks of persistent vomiting for some six months, the condition steadily getting worse. Apparently there was never at any time much abdominal pain.

On admission the child was extremely thin and looked ill. The abdomen was dull on the right side from the costal margin downwards, and tympanitic on the left. The right rectus muscle was distinctly prominent. For the first seventeen days after admission he vomited nearly every day, usually profusely: there was no abdominal pain or tenderness. The child appeared to be getting thinner. A diagnosis of pyloric obstruction was made from the clinical symptoms.

On January 19 he was sent to me for X-ray examination. On giving him a bismuth meal I found that it passed to the right of the middle line instead of to the left at the cardiac orifice, suggesting at the commencement of the examination that the stomach was transposed, although the position of the heart was normal. The outline of the stomach, however, was not that of a normally shaped stomach merely transposed to the right, but more like that of the upper sac of an hour-glass stomach. There was also obvious delay in the emptying of the organ, as none had passed through the pylorus at the end of seventy-five minutes. When I saw him twenty-four hours later the whole of the bismuth was in the large intestine; the latter was normal in shape and position, except that the transverse colon was somewhat high in the abdomen.

The following day I saw him five hours after another bismuth meal. As you will see from this slide (fig. 1), the greater part of this meal was still in the stomach on the right side of the middle line; a small quantity having passed into the small intestine was situated chiefly in the ileum. The slide also suggests that the transverse colon

is higher than normal, as the skiagram was taken with the child in the upright position.

The next day I arranged for him to be sent to my rooms in order that my partner, Dr. Barclay, might see him with me. The next slide (fig. 2) shows the condition on that occasion. The whole of the bismuth previously given had disappeared with the exception of a small trace in the descending colon, and on giving another meal we found that it again passed to the right side.

At no time did I see any bismuth actually pass out of the stomach, so I was unable to obtain any information as to the position of the pylorus.

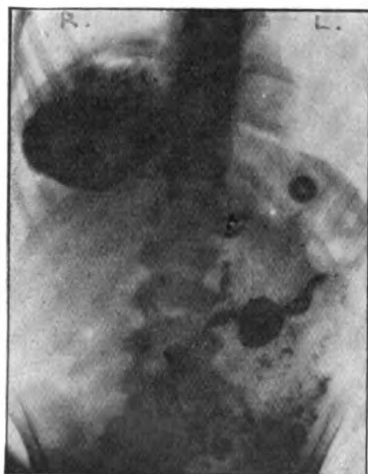


FIG. 1.



FIG. 2.

The diagnosis was not clear at first. My original idea was that the stomach was perhaps dragged over to the right side by adhesions, with mechanical obstruction of the outlet, but Dr. Barclay afterwards suggested the possibility of a hernia of the stomach through the diaphragm, and on consideration this seemed to me to be the most likely diagnosis, as the lung structures at the right base could be seen clearly through the air-distended fundus.

On January 24, three days later, Mr. Howson Ray, Surgeon to the Hospital, operated, and the following details are taken from the Hospital notes: "On opening the abdomen to the right of the middle line, and displacing the right rectus outwards, the epigastrium was found occupied by the colon; only a small piece of the stomach could be

seen very far back under the diaphragm. On further exploration the major part of the stomach was discovered herniated through the œsophageal opening. The other abdominal organs were normal. The stomach was brought down and stitched to the anterior abdominal wall by four or five silk sutures, and the abdominal wound closed."

For the next sixteen days the boy did well; there was no vomiting, and he put on weight. On February 10, however, there was profuse vomiting, and he vomited every day up to February 27, when he was again sent to me for X-ray examination. After seeing him I reported that the stomach had passed back through the diaphragm, and was exactly as when I first saw him. There was again pyloric obstruction.

On March 3, therefore, Mr. Howson Ray opened the abdomen for the second time, and again found that the stomach had passed through the œsophageal opening of the diaphragm. On this occasion he brought a piece of the stomach through the abdominal incision and did a gastrostomy so as to fix the organ permanently in this position. I may add that at both operations he found that there was a good deal of resistance to the pulling of the stomach down through the œsophageal opening, and that it had a tendency to slip back on relaxing the tension.

I have not seen the boy since the second operation, but the subsequent history appears to indicate that a cure has been attained.

The PRESIDENT expressed the thanks of the Section for the most interesting series of slides.





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